WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

Report to the

Minister of the Environment

Achieving Sustainable Municipal Waste Diversion Programs in Ontario

1 September 2000

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Secretariat to WDO:

CSR
CORPORATIONS
SUPPORTING
RECYCLING

Prepared on behalf of the
Waste Diversion Organization (WDO) by
CSR: Corporations Supporting Recycling
Secretariat to the WDO

WDO September 1 Report
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September 1, 2000

Introductory Remarks from the Chair

This report to the Minister of the Environment, delivered as requested by September 1, is the culmination of nearly a year of hard work and incredible dedication on the part of hundreds of individuals: elected officials, municipal staff, industry personnel, environmental organizations, the staff of CSR: Corporations Supporting Recycling, contracted consultants and organizations throughout Ontario implementing the 75 projects funded by the Waste Diversion Organization (WDO) that have been approved to date.

It is with pride that, on behalf of the Board of Directors, I commend and thank those who worked side-by-side as public and private sector colleagues, sometimes in spirited debate, always with an eye on the goal, to ensure that the WDO would meet or exceed the challenges set out for us in the Memorandum of Understanding.

We believe that the recommendations set out in this report will allow for a significant leap forward in achieving sustainable residential waste management programs in Ontario. It is a plan that we believe is both fair and equitable. It is a plan that has gained support from industries and municipalities. It is a plan that, to succeed, hinges on the support of the Province of Ontario, too. We must look to the province to establish the enforcement mechanisms necessary to ensure a level playing field is in place for all industry sectors that contribute products or packaging to the residential waste stream. Without this essential component, the WDO cannot continue, and the work we've done will have been for naught. We trust the province will take swift and decisive action to ensure this is not the case.

In these final words, I would like to convey my personal and heart-felt appreciation to all who shared with me the WDO experience and who brought us to where we are today. To the Board of Directors, the co-chairs and members of the committees and task groups, and the executive and staff of the WDO Secretariat—you have been a pleasure to work with and it is with regret that with the submission of this report and following the October 11 board meeting, I complete my current duties as chair. I wish you every success in continuing to work together as a team of municipal, industry and environmental organization representatives, to build the best residential waste management system in the world.

Yours truly,

EP Elwood

E. Peter Elwood
Chair

September 1, 2000

Message from the CEO

I am very pleased to have this opportunity of adding my comments to those of our WDO Chair, Peter Elwood.

The WDO "process" has been a challenging but rewarding assignment for those of us at CSR: Corporations Supporting Recycling who have been supporting the WDO as the Secretariat. I am proud of what our CSR/WDO team has accomplished in tackling the tasks set out for us in the Memorandum of Understanding and I would like to thank them, as well as all the others who have helped us in this nine-month journey.

With the delivery of this report, "Achieving Sustainable Municipal Waste Diversion Programs in Ontario," to the Minister of the Environment, CSR/WDO completes a major task. But our mission is far from over. We will continue to work on behalf of waste diversion efforts in Ontario, most particularly to help implement, monitor and evaluate the 75 municipal projects that the WDO approved for funding. The results of these, and projects yet to be approved under the Round Three Call for Proposals, will advance our knowledge of how to boost provincial diversion levels even more.

In addition, we will be initiating discussions with key stakeholders on the matter of the governance of the WDO. We will be continuing, in cooperation with the Association of Municipalities of Ontario, the detailed work required to fine tune the funding models and we will be meeting with industry groups to discuss how to assess costs. All of this work and more will culminate in the activity report to the Minister due in February 2001.

In the meantime, we look forward to a positive response from the Minister of the Environment and other stakeholders on the recommendations contained in this report. As you read through it, you will find that it is the product of a rich collection of provincial waste diversion data combined with a great deal of thought from a wide range of public and private sector participants on how to achieve sustainable diversion objectives and how to fund municipal waste diversion programs in Ontario.

We recognize that some readers who may not have been close to the process could find the depth and breadth of this body of work a bit of a handful. If this is the case, we invite you to contact the CSR/WDO staff. We will be pleased to provide clarification.

As a final note, I would like to acknowledge the hard work and dedication of the WDO/CSR team of staff and consultants who have been dedicated to the success of the WDO. Please note their names on the following page.

As always, we welcome your comments.
Yours truly,

D Bassett

Damian Bassett
CEO

Phone: 416-594-3456, ext. 229
FAX: 416-594-3463
Email: bassett@csr.org

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Executive Summary

Purpose of this Report

This report is submitted to the Ontario Minister of the Environment in fulfillment of the requirement of Part IV D (4) of the Memorandum Understanding (MOU), which outlines the roles and responsibilities of the Waste Diversion Organization (WDO).

The report includes the final recommendations of the WDO Board of Directors concerning the continuation of the WDO and of the programs described in the MOU, as well as options for the long-term sustainability of these programs. The estimated waste diversion expected to be achieved through the programs supported by the WDO and the costs associated with the implementation of these programs are also addressed.

Fulfillment of the Further Requirements of the MOU

The WDO has made very significant progress in completing the full range of tasks set for it in November 1999 and many of these accomplishments are outlined in this report. Key tasks that remain to be finished over the next six months include:

- implementation, monitoring and evaluation of the 75 projects approved for funding by the WDO as of August 30, 2000 at a cost of $1,517,880;
- selection, awarding, implementation, monitoring and evaluation of a final round of WDO project funding at a cost of $ 717,720;
- revisions, as required, to the recycling, organics and HSW Interim Five-Year Plans based on the results of these WDO-funded projects and the ongoing work of the WDO Secretariat;
- preparation of a report and recommendations from the WDO Board on the future governance structure of the WDO, should the permanent arrangements required for continuation of the WDO be put in place by the Government of Ontario; and
- preparation of the audited financial statements for the first fiscal year of the corporation which ends December 31, 2000.

A year-end report including these elements and a summary of the year-one activities of the WDO will be submitted to the Minister of the Environment no later than February 28, 2001.

Projected Waste Diversion From WDO Supported Programs

The Provincial Waste Diversion Goal of 50%

The Government of Ontario has established a target to decrease the amount of waste going to disposal by 50% compared to the amount of waste going to disposal for the base year of 1987. This target applies to the combined total of residential, industrial, commercial and institutional (IC&I) solid wastes.

The WDO supports this overall provincial diversion goal and can make an effective contribution to achieving this by providing financial and technical assistance to municipally-sponsored diversion programs targeted at the *residential* waste stream. In addition to reporting on progress being made towards this historic goal, the WDO should also report on the annual waste diversion rate achieved by municipalities on a current waste flow basis.

What Would It Take to Get to 50% Diversion of Residential Waste?

Using data reported by municipalities representing 99% of residential waste in the province, the WDO has determined that approximately 27%, or 1.2 million tonnes of residential waste generated in Ontario were being diverted through recycling, composting and special waste programs in 1999. Having established the current diversion baseline for 1999 at 27%, the WDO looked forward to 2005 to determine the level of diversion that would be necessary to achieve 50% residential diversion measured on a current flow basis. It was calculated that about 1.1 million new tonnes of diversion would be required to achieve this target and based on this, detailed interim five-year plans were prepared for each material stream.

The significant majority of this new diversion would need to come from expanding recovery of yard, garden and food wastes for which no responsible industry sector has been identified to share these costs.

Our analysis to date suggests that attaining a 50% diversion of residential waste within this five-year timeframe would require fundamental technical, social and policy shifts akin to a 'step change' in behaviour from Ontario citizens and from industry to move to a next generation diversion system. The elements of such a change would have to include consideration of:

- modifications of the Ontario 3Rs Regulations requiring municipalities to divert an expanded organics stream;
- regionally-appropriate disposal bans on organic material;
- expansion of bag limit and user fee programs to all municipalities;
- higher landfill tipping fees to recognize the true market value of disposal;
- extensive public education and ultimately public acceptance of a doubling of their efforts at organic diversion, including overcoming householder resistance to sorting and storing kitchen wastes;
- fast tracking site approvals and permits for the design and construction of the new facilities required to process the 700,000 new tonnes of organic material that would need to be diverted;
- the need for rapid agreement to an equitable cost-sharing formula for organics diversion among industry, municipalities and the province to provide an economic base for the immediate capital expansion program that would be required;
- possible need to re-negotiate a large number of municipal contracts with waste management contractors likely resulting in additional cost;
- enforcement mechanisms to underpin the financial contributions expected to be required from industry;
- redesign of products and packaging to reduce waste and to facilitate diversion; and
- changing production processes to increase utilization of recovered materials.

Given these challenges, and in particular the lack of an agreed to cost-sharing formula for funding organic diversion, achieving a 50% diversion rate in the residential waste stream within five years on a current waste flow basis is not likely to be achieved.

Waste Diversion Expected to be Achieved from Recommended WDO Programs

Based on the five-year plans developed by the task groups, the WDO reached the following conclusions:

Regarding the recycling stream:

Based on the infrastructure already in place, the proposed financial support from industry and assuming the availability of adequate markets to absorb new materials, a 50% diversion rate for materials recycling is considered aggressive but achievable.

Regarding organics:

It is the consensus position of the WDO, that a 50% diversion rate for organics is not likely to be achieved over the next five years, especially given the lack of an agreed to funding support system for such efforts. Significant progress can be achieved, however, if this key funding issue is resolved.

Regarding HSW:

While the goal of the WDO is ultimately to reduce the generation of HSW, the aggressive diversion rate for HSW is considered achievable. Given the small quantities involved, however, this will not make a significant contribution to the overall diversion target.

As a result of these broad conclusions and the feedback received in response to the WDO Interim Report, the recommended waste diversion goal for WDO supported programs, as detailed in this report, would be an estimated 44% of residential waste on a current flow basis by 2005.

When calculated using the historic diversion calculation methodology used by the province, this is equivalent to a 46% diversion rate based on the 1987 baseline. In turn, when this projected historic residential rate is combined with the reduction from disposal rate achieved within the IC&I sector (which is the target established for the province-wide measurement system as described in Section 4.1), there is a strong possibility of achieving the overall 50% waste diversion rate set by the province.

Projected Costs of Achieving This Diversion

Municipal Recycling

The WDO estimated the net cost of collecting, processing and marketing recyclables in 1999 to be $99/tonne. Municipalities across the province spent approximately $66.0 million on recycling programs in 1999 to recover 667,000 tonnes.

The cost of recycling in future years will depend upon the total quantity of materials recovered, the gross cost of collection and processing and the value of the 'basket of goods' revenue in any given year. The recommended diversion plan for municipal recycling projects is that an additional 338,000 tonnes of recyclables will be recycled by 2005, resulting in 1.0 million tonnes of annual diversion. The projected annual net operating cost of this system in 2005 is estimated to be $64.0 million, if market prices for recovered material remain strong.

Organic Waste Diversion

Ontario households diverted an estimated 393,000 tonnes of organic waste, primarily leaf and yard wastes, in 1999. The cost of the existing organics management system is estimated at $25million/year, based on a survey of Ontario municipalities in June 2000.

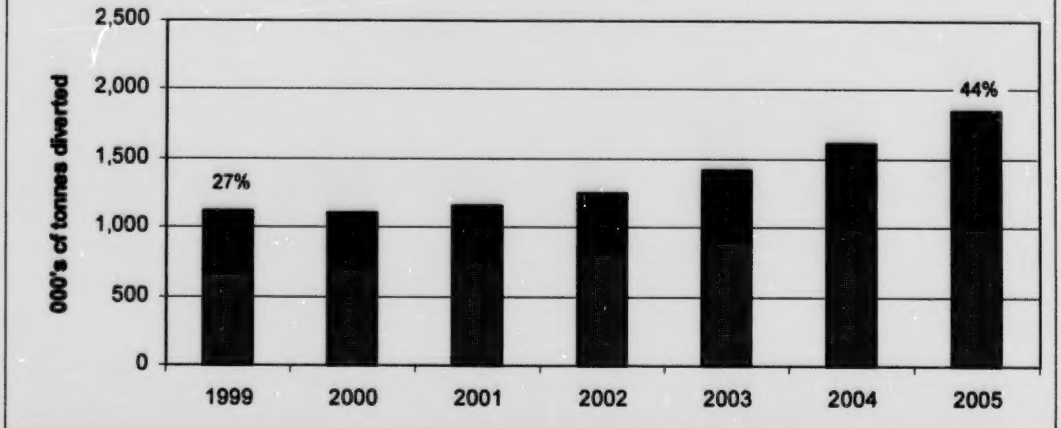
The recommended plan for organics diversion, which involves the aggressive addition of 460,000 new tonnes of diversion (extending recovery into food wastes and multi-family housing at higher costs) over the next five years, would have capital costs estimated at $350 million, and ongoing annual operating costs for the organics system estimated at $119 million/year (including amortized capital) in year five. These projected costs are net of any revenues from the sale of compost, but do not reflect any potentially offsetting savings in the reduction of organic waste going to disposal.

HSW Management

Based on the collection of 6,360 tonnes of HSW in 1999, the annual cost of operating these programs is estimated between $8 and $10 million. The average cost per tonne to dispose of HSW material is estimated to be approximately $1300/tonne.

It is projected that by 2005 the quantity collected will increase to approximately 9,800 tonnes at a projected annual operating cost of $13 to $17 million.

Figure 5.5
Cost Projections for WDO Recommended Diversion Programs



System Cost $millions							
	HSW	$10.0	$10.0	$11.0	$12.5	$14.0	$15.5	$17.0
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Recycling	$66.0	$41.4	$40.5	$47.0	$53.9	$63.1	$64.0
	Total	$101.0	$79.2	$ 84.1	$ 96.4	$125.3	$162.3	$199.5

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

Total Diversion Systems Costs – Five-Year Projections

The projected annual net operating cost of achieving 50% diversion of residential waste is $260 million or approximately $117 per tonne. Given these costs to divert waste, municipalities likely would be faced with higher overall waste management costs under a 50% diversion scenario than the alternative of disposing of some of this material as waste.

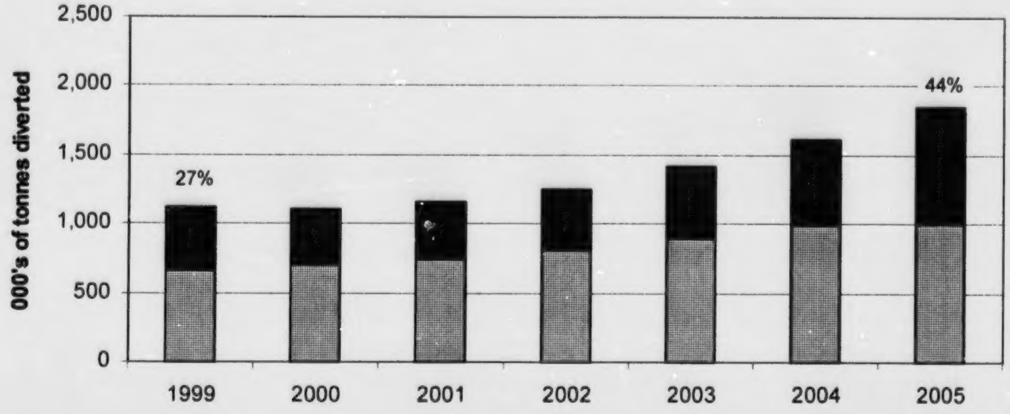
The recommended plan for organics diversion, which involves the aggressive addition of 460,000 new tonnes of diversion (extending recovery into food wastes and multi-family housing at higher costs) over the next five years, would have capital costs estimated at $350 million, and ongoing annual operating costs for the organics system estimated at $119 million/year (including amortized capital) in year five. These projected costs are net of any revenues from the sale of compost, but do not reflect any potentially offsetting savings in the reduction of organic waste going to disposal.

HSW Management

Based on the collection of 6,360 tonnes of HSW in 1999, the annual cost of operating these programs is estimated between $8 and $10 million. The average cost per tonne to dispose of HSW material is estimated to be approximately $1300/tonne.

It is projected that by 2005 the quantity collected will increase to approximately 9,800 tonnes at a projected annual operating cost of $13 to $17 million.

Figure 5.5
Cost Projections for WDO Recommended Diversion Programs



System Cost $millions	1999	2000	2001	2002	2003	2004	2005
HSW	$10.0	$10.0	$11.0	$12.5	$14.0	$15.5	$17.0
Organics	$25.0	$27.8	$32.6	$36.9	$57.4	$83.7	$118.5
Recycling	**$66.0**	**$ 41.4**	**$40.5**	**$47.0**	**$53.9**	**$63.1**	**$64.0**
Total	$101.0	$79.2	$ 84.1	$ 96.4	$125.3	$162.3	$199.5

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

Total Diversion Systems Costs – Five-Year Projections

The projected annual net operating cost of achieving 50% diversion of residential waste is $260 million or approximately $117 per tonne. Given these costs to divert waste, municipalities likely would be faced with higher overall waste management costs under a 50% diversion scenario than the alternative of disposing of some of this material as waste.

The overall annual operating cost of achieving the WDO-recommended diversion rate of 44% is projected to be $199.5 million in 2005. At a projected overall cost per tonne of $97, this is significantly less expensive than the cost estimated for the 50% overall diversion scenario. It is interesting to note that the cost of attaining the last few percentage points of diversion is very high. Specifically, the cost for the additional increment of diversion (i.e. the last 6%), jumps to $189/tonne. Most of this additional cost is directly related to managing organic materials for which industry would not be a major contributor. At $97 per tonne average cost, the recommended WDO scenario is also expected to be cost competitive with the projected future costs to manage these materials as waste (estimated to be approximately $100 per tonne).

WDO Program Delivery and Administrative Costs

In addition to these direct municipal program costs, there will be additional expenses related to raising funds through an appropriate industry stewardship organization and for the delivery and administration of WDO agreed to programs. These costs will be built into the calculation of fees to be required from industry. Extraordinary program start-up costs such as legal, membership recruitment and registry, research, training, information technology and other program development costs will also be incurred. Allowance also should be made for the fact that it will be inevitable that contributions due from some obligated companies (i.e. small importers) will be delayed. In general, these start-up program delivery and administrative costs can be expected to represent a higher percentage of total program costs in the early years of a program and to decline (as a percentage of the total program budget) in subsequent years, as diversion programs mature. Experience from other jurisdictions has shown that these costs will range from 10% to 20% of municipal support payment costs, depending upon the complexity of the program, the level of support services provided by the agency and the maturity of the organization and the programs for which it provides support.

Key Conclusions Reached by Industry Regarding the Industry Share of Costs

As agreed to in the WDO Guiding Principles, it is the responsibility of industry to identify an appropriate financing mechanism for raising the funds required to support agreed to WDO programs. Key conclusions reached by industry representatives related to packaging wastes include:

1. A level playing field regulation is essential to raise the share of funds expected to be contributed from industries using packaging materials.

2. Industry must retain responsibility for raising and distributing its share of the costs concerning agreed to WDO programs.

3. The brand owner/first importer is the most appropriate point of obligation.

4. The widest possible net of consumer packaging and packaged consumer products (whether used in the home or similar products sold in IC&I accounts) should be included in the enforcement mechanism to ensure a level playing field and to lower the rate of contribution required from all participating companies.

5. A sales-based levy represents the most administratively efficient mechanism for calculating individual company contributions.

6. There should be no minimum threshold exemptions set out in the enforcement mechanism but this issue should be addressed within the rules of the designated industry stewardship organization.

Industry representatives from the HSW sector agree that a level playing field regulation is essential to secure financing for the WDO program. Discussions are continuing on funding issues specific to this sector.

Industry representatives from the printed paper sector do not support the need for regulation for this sector. It is expected that strong market demand and prices for this material will support efficient municipal recovery costs. This sector prefers entering into a voluntary agreement regarding the activities of the WDO.

Summary of Key Recommendations in the Report

Numerous recommendations are made throughout the body of the report. A summary of the key recommendations related to specific issues identified in the MOU follows:

Continuance of the WDO

1. The province should put in place arrangements for the continuation of the WDO for the purpose of implementing the programs outlined in this report.
2. The waste diversion goals and the financial contributions expected from industry as outlined in this report cannot be achieved through voluntary arrangements. The continuation of the WDO itself will require the province to implement adequate enforcement mechanisms as outlined in this report.
3. The ongoing need for continuing the proposed industry and municipal funding arrangements should be formally reviewed within a period of no longer than five years.
4. Industry should continue to be responsible for the collection of its agreed to share of WDO program costs and these funds should be dedicated solely to these programs and related program delivery and administrative costs.
5. The WDO should complete a lifecycle inventory of the environmental costs and benefits of achieving a 50% waste diversion goal on a province-wide basis as well as in a representative sample of Ontario municipalities.

Municipal Recycling

6. The WDO should implement a program of financial and technical assistance to Ontario municipalities to support the continued growth and to improve the efficiency and cost effectiveness of residential materials recycling programs.
7. Industry should provide financial support equal to 50% of the aggregate provincial net costs of municipal recycling programs.
8. Funds provided to municipalities through the WDO should be calculated on the basis of the municipal funding allocation model developed (and being refined) by the WDO.
9. The priority areas for continued WDO technical assistance include:

- optimization of the provincial network of material recovery facilities (MRFs);
- expanded and improved multi-family recycling programs;
- strengthening of markets for recovered materials to accommodate the 342,000 new tonnes projected to be recovered; and
- closer integration of recyclables, organics and HSW diversion systems to reduce total system costs.

Recyclable Beverage Alcohol Containers

10. The LCBO should contribute $5,000,000 per year (on behalf of the beverage alcohol industry that it represents at retail) to support the recovery of recyclable beverage alcohol containers and the programs of the WDO.

11. Changes should be made to the RBAC funding program including:

    - funding payments should be limited to containers recovered from residential sources only;
    - funding payments should be based on the total quantities diverted to beneficial uses only
    - (i.e. diverted from landfill);
    - data reporting systems should be strengthened and be subject to audit by the WDO.

Organic Waste Diversion

12. The costs of increasing organic waste diversion should be shared primarily between municipalities and the province. The WDO should implement a program of financial and technical assistance to Ontario municipalities that includes sanitary paper and other paper products in municipal organic waste diversion programs.

13. The province should take a lead role in the development of product quality standards and procurement guidelines that will be critical to creating additional market demand for products made from recovered organics.

14. The WDO should provide technical support to further the growth of organic diversion programs by:

    - supporting research and demonstration projects designed to overcome technical barriers to recovering and processing organic wastes;
    - providing communications and education programs in support of consumer behavior change; and
    - integrating expanded organic systems with existing waste diversion efforts.

HSW Management

15. The WDO should implement a program of financial and technical assistance to Ontario municipalities for HSW management to improve the efficiency and cost effectiveness of these programs.

16. The costs of municipal HSW programs should be shared on a 50/50 basis between industry (through the WDO) and municipalities.

17. Municipalities should retain operational responsibility for local HSW administration, collection and arranging for post-collection treatment.

18. Materials included for WDO funding should be reviewed on an annual basis according to defined scientific criteria.

Communications

19. The provision of advertising space in daily and community newspapers at no charge to municipalities should be continued and the value of this contribution taken into consideration in any calculation of financial contribution that might be required from this sector.

20. The WDO should provide communication and education support for the waste diversion programs operated by Ontario municipalities.

21. The WDO should maintain a co-ordinated, province-wide communications program in support of Ontario-wide diversion campaigns and to inform key stakeholders of the activities and results achieved by the WDO.

Recommendations On Long-Term Sustainable Funding Mechanisms

Industry Enforcement Mechanisms

22. The Province of Ontario should adopt a regulation requiring brand owners or first importers of all packaged consumer products sold in the province to recover their packaging material, or, alternatively, to be a member in good standing of a WDO-approved industry packaging stewardship organization which takes on this responsibility on their behalf.

    Key elements of proposed packaging regulation are:

    (a) the brand owners or first importers of packaged consumer products sold in Ontario should be required to implement and finance programs that recover their packaging, independent of municipal waste management programs, to meet specified performance targets and to provide annual reports on these programs to the WDO;
    (b) in-store packaging (packaging applied in the store, including bags) should be included in the regulation;
    (c) agreement that an acceptable form of alternative compliance would be membership in good standing of a WDO-approved industry stewardship program that provides financial and technical support to municipalities operating packaging waste diversion programs;
    (d) retailers should require certification from their suppliers that all packaged products delivered to or purchased for their stores are included in an approved stewardship program; and
    (e) penalties for brand owners and first importers not in compliance should include fines plus any stewardship fees due for previous years.

23. The Province of Ontario should adopt a regulation requiring brand owners or first importers of all designated HSW products sold in the province to recover designated residual HSW materials, or, alternatively, to be a member in good standing of a WDO-approved industry stewardship organization which takes on this responsibility on their behalf.

Key elements of proposed HSW regulation are:

(a) to require brand owners or first importers of consumer HSW products sold in Ontario to implement and finance programs to manage designated post-consumer residual materials, independent of municipal waste management programs, and to provide annual reports on these programs to the WDO;
(b) to include in the definition of HSW materials those materials agreed to by the WDO HSW Task Group;
(c) to agree that an acceptable form of alternative compliance would be membership in good standing of a WDO-approved industry stewardship program providing financial and technical support to municipalities operating HSW waste management programs;
(d) that retailers should require certification from their suppliers that all designated HSW products sold in their stores are included in an approved stewardship program; and
(e) penalties for brand owners and first importers not in compliance would include fines plus any stewardship fees due for previous years.

24. Publishers, importers and/or distributors of designated printed materials sold or distributed in the Province of Ontario should recover their materials, or be included as members of a WDO-approved industry stewardship organization.

Key elements of the proposed printed material agreement are:

(a) to include newspapers, magazines, advertising flyers, fine papers, catalogues and directories in the agreement;
(b) where the cost of recovering these materials through efficient municipal recycling programs is greater than the revenue received from sale of these materials, publishers, importers and/or distributors contribute up to 50% of this cost differential;
(c) an approved industry stewardship organization determines, on an annual basis, the appropriate share of costs between newspapers, other printed paper and packaging materials;
(d) to use the proposed WDO funding allocation model in determining the appropriate cost allocation subject to:
  - WDO agreement on key model assumptions regarding appropriate material densities, cost allocations by weight/volume, and material revenues used to determine each industry's share of financial contributions to support WDO programs. These assumptions should be consistent with those used for determining the municipal funding allocation;
  - completing field tests of the proposed model for a minimum of 10 municipalities and for estimating the net municipal recycling costs for newspapers, other printed paper and for packaging for the province as a whole; and
  - incorporating a mechanism to take into account surplus revenue from the sale of recovered newspapers in any given year against calculated net costs of newspaper recycling in subsequent years.
(e) to give a credit to offset a portion of the calculated newspaper share of WDO costs for newspaper advertising space made available to Ontario municipalities at no charge to promote waste reduction and diversion;
(f) to allow the equivalent of at least $1.3 million of the in-kind contribution to constitute part of the financial contribution of industry to the 50% share of municipal program costs; and
(g) to make a financial contribution reflecting a fair share of WDO/industry stewardship organization costs related to communications, technical support and administration.

Municipal Enforcement Mechanisms

25. The Government of Ontario should implement mechanisms to ensure that municipalities establish the programs recommended by the WDO in support of the province's waste diversion and HSW management objectives and to make the costs of these programs visible to their residents.

Key elements of municipal enforcement mechanisms are:

(a) to extend minimum waste diversion service requirements to include expanded organic waste diversion and appropriate HSW management services;
(b) to enact regionally appropriate bans on organic waste disposal in landfill sites;
(c) to require municipalities to calculate the costs of local waste management and waste diversion services and to notify residents of these costs; and
(d) to require those municipalities that achieve less than a 50% waste diversion rate (based upon the base year of 1987) by 2005 to implement incentive schemes (such as bag limits or user fees), or alternatively, to have their WDO financial contribution reduced.

Introduction

This report is submitted to the Ontario Minister of the Environment in fulfillment of the requirement of Part IV D (4) of the Memorandum of Understanding (MOU), which sets out the roles and responsibilities of the Waste Diversion Organization (WDO).

The data and views presented in this report draw heavily from the work completed by the committees and task groups established by the WDO, as outlined in Appendix 2. A broad cross-section of individuals from the public and the private sectors provided substantial input to this report. Interim Five-Year Plans for recycling, household special waste (HSW) management and organics diversion, prepared with the assistance of three tasks groups struck by the WDO Programs Committee for this purpose, are included as Appendix 4. While this body of work provides the critical foundation for the recommendations outlined in this report, these documents remain "works in progress." The WDO will continue to refine these reports as new information is received from WDO-funded projects and feedback is received from other stakeholders in response to this report. Each of the task group reports was prepared independently resulting in the differences in style and format.

The key data, analysis and recommendations outlined in these Interim Five-Year Plans were subsequently reviewed by the WDO Funding and Regulations Committee, which in turn forwarded its recommendations to the WDO Board of Directors. The main body of this report, therefore, represents the views and recommendations of the WDO Board of Directors, and not necessarily those of individual members of the WDO committees and task groups.

It must also be emphasized that the WDO Board of Directors recognized that the cost projections in this report can only be projections. There are any number of factors which can be expected to influence the costs that actually will be included by municipal diversion programs and the revenues that will be received from the sale of recovered materials in the future. Recognizing this, the participants in the WDO process adopted the pragmatic view that "the numbers will be what the numbers will be." That is, the WDO calculations that will be made in future years will be based on the best available data that can be agreed to by the participants involved in the process at that time.

Every effort has been made through the WDO committee work to access and utilize the best available data from all key stakeholders in the province. The 1999 cost survey which forms the basis for the financial projections, for example, was conducted with the assistance of the CAO Municipal Benchmarking Initiative, Municipal Waste Integration Network (MWIN), Association of Municipal Recycling Coordinators (AMRC), Composting Council of Canada (CCC) and Recycling Council of Ontario (RCO). We are confident that this data represents the most thorough and comprehensive baseline yet established for Ontario's waste diversion efforts.

Furthermore, projects approved in the WDO Round One funding gave significant priority to improving further this data base. The results from these efforts will be used to continue to refine existing planning assumptions.

Data presented in the main body of the report has been kept brief. More detailed analysis for each waste stream is provided in the Five-Year Plans.

It is recommended that priority attention be given to the broad policy recommendations made and methodologies proposed for calculating cost sharing, rather than the initial data estimates used throughout the report.

Part I

Requirements of the MOU That Have Been Completed

1.0 Part I – Requirements of the MOU that Have Been Completed

1.1 Brief Overview of WDO Board of Directors & Committee Work

In preparing the recommendations outlined in this report, the WDO Board has received advice, guidance and technical support from some of the leading experts in waste diversion in the Province of Ontario. Appendices 1 and 2 provide an overview of the committee structure which underpins the work of the WDO and identifies the individuals who have given so generously of their time to this effort.

The committees and the task groups established by the WDO have provided the board with a wide range of recommendations on all of the key topics set out in the guiding Memorandum of Understanding (MOU). It must be emphasized, however, that the recommendations set out in this report represent the views and decisions taken by the Board of Directors of the WDO.

Board of Directors

Five meetings took place as of August 9.

Accomplishments:

- ✓ Reviewed and approved the WDO incorporation, committee structure and committee representation.
- ✓ Reviewed and approved the Terms of Reference for all committees and task groups.
- ✓ Reviewed and approved the WDO Budget.
- ✓ Reviewed and approved the Guiding Principles for the long-term funding formula.
- ✓ Reviewed and approved the LCBO (now Recyclable Beverage Alcohol Container Support Programs [RBAC]) disbursement.
- ✓ Reviewed and approved the first and second quarter newsletter, "The WDO Link."
- ✓ Reviewed and approved the financial support for Compost Awareness Week.
- ✓ Reviewed and approved the Programs Committee's "Round One" Projects cost allocation.
- ✓ Reviewed and approved the "Round One" selections as recommended by Programs Committee and task groups.
- ✓ Board and committee representatives met with Environmental Non-Government Organizations
- ✓ (ENGOs).
- ✓ Reviewed and approved the "Round Two" Projects funding envelope.
- ✓ Reviewed and approved the "Round Three" Projects funding envelope.
- ✓ Reviewed and accepted the report on WDO consultation process.
- ✓ Reviewed and approved the Interim Report to the Minister of Environment.
- ✓ Reviewed and approved Financial Statements to June 30, 2000.
- ✓ Reviewed and approved the recommendations from the WDO Programs, Funding and Regulations and Communications Committees related to WDO programs and long-term sustainable funding mechanisms.
- ✓ Reviewed and approved September 1 Report to Minister of the Environment.

1.1.1 Programs Committee

Terms of Reference

The Programs Committee has undertaken three key activities:

- the development of long-term (five-year) plans for meeting Ontario's waste diversion goals in a sustainable and cost effective manner;
- identifying and allocating immediate financial and technical support for opportunities to improve the efficiency and cost effectiveness of existing recycling and waste diversion programs and to establish HSW management programs in unserviced areas; and
- managing the disbursement of the Recyclable Beverage Alcohol Container (RBAC) funds to Ontario municipalities.

The Programs Committee comprises 17 members from across Ontario. They are senior elected officials, municipal professional staff, corporate presidents, senior industry specialists and commissioners of public works.

Three task groups have supported the Programs Committee, each specializing in a particular field of waste diversion:

- The Optimization Task Group focused on optimizing the existing municipal recycling system through improved diversion, collection efficiency, rationalization of processing centres and market development.
- The Household Special Waste (HSW) Task Group took on the responsibility of developing a long-term strategy to manage HSW and of ensuring the immediate introduction of between five and 10 HSW depots for areas of the province currently not serviced.
- The Organics Task Group tackled the challenge of developing a strategy to divert organic wastes, a key component in the plan for achieving the province's 50% waste diversion goal.

Together, these task groups comprise more than 60 of the most experienced industry and municipal technical specialists, representing a sound cross-section of diversion expertise in Ontario. The co-chairs of each task group also sit on the Programs Committee to provide continuity.

Seven meetings took place as of August 4th.

Accomplishments:

- ✓ Prepared a waste diversion background report to establish a baseline for all WDO participants.
- ✓ Delivered 1999 Recycled Beverage Alcohol Container (RBAC) funding to municipalities one month ahead of schedule; streamlined the process for distribution of RBAC 2000 funds and recommended changes for RBAC 2001.
- ✓ Developed the guidelines and merged the priorities established by the task groups for the distribution of municipal program support funds.
- ✓ Completed the 'Round One' Call for Proposals resulting in the approval of 35 innovative, transferable projects at a cost of $583,000.
- ✓ Completed the 'Round Two' Call for Proposals from municipalities resulting in the approval of 40 additional innovative projects at a cost of $934,000. With leveraged municipal support, the total project value of Rounds One and Two exceeds $2.5 million.

- ✓ Set date of September 21st for issuance of the third and final round of WDO project funding.
- ✓ Approved support for nine special waste depots in unserviced areas according to the directive contained in the Memorandum of Understanding.
- ✓ Undertook a province-wide survey of recycling, HSW and organic diversion costs for 1999 in co-operation with the Municipal Chief Administrative Officers' (CAO) Benchmarking Initiative. Working cooperatively with the Municipal Waste Integration Network, Recycling Council of Ontario, Composting Council of Canada and Association of Municipal Recycling Coordinators to collect data.
- ✓ Developed material-specific funding formula considerations for organics and HSW.
- ✓ Prepared the five-year forecasts of residential recycling, organics and HSW recovery rates and associated costs, and combined projections into three system-wide diversion scenarios. Recommended a blended diversion scenario that achieves a 44% diversion of residential waste on a current flow calculation basis.

Integrating Task Group Long-Term Plans

The work of the Programs Committee often required integrating the work of the three task groups. This was particularly true during the preparation of the Interim Five-Year Plans. Achieving the recommended WDO diversion goal is dependent upon both materials recycling and organics diversion realizing their goal, as established in their individual work plans. (Since HSW comprises less than one percent of the waste stream, increased diversion of this material cannot contribute significantly to the quantitative diversion goal.) If either the recycling or organics streams are unable to meet their individual goals, then the overall goal for which the Programs Committee is responsible cannot be met.

By way of example, the Organics Task Group, upon completing its preliminary work, advised the Programs Committee that the original target set for the diversion of 'new' tonnes of organic wastes was not practical. The Programs Committee took a more holistic view of the entire Ontario system and directed the Curbside Optimization Task Group to re-examine whether it would be possible to increase diversion efforts in its area of responsibility (recycling diversion). The Optimization Task group examined the situation and subsequently modified its planning efforts to identify potential diversion of an additional 112,000 tonnes of residential recyclable materials. This change is now reflected in the waste diversion scenarios set out in this report.

Immediate Support For Municipal Waste Diversion Programs

One of the primary functions of the Programs Committee has been to provide immediate assistance to expand and improve current municipal waste diversion systems. Section 1.2 provides details of the programs funded by the WDO through its Rounds One and Two Proposal application processes. Section 2.1 outlines the priorities that have been established for Round Three.

The Programs Committee has played a critical role in combining the various program recommendations made by the three task groups into a balanced support program. The committee ensured that the selection process was rigorous and fair and that it maintained a balance of geographic and waste stream considerations. In Round Two, for example, the committee recommended a shift of $60,000 from the programs funding envelope originally approved by the WDO Board from the budgets of the Curbside Optimization and Organics Task Groups to the HSW Task Group to allow for the funding of an important HSW depot in northern Ontario. In Round Three, the committee is considering a similar reallocation of the budget.

In Round One, each task group identified major gaps with respect to the availability of up-to-date cost information for diversion activities in Ontario. Tonnage information is made available annually through the Municipal 3Rs in Ontario Fact Sheet but cost information, on a province-wide basis, was judged insufficient because it was between two and three years old (or in some cases non-existent). To ensure a consolidated approach, the Programs Committee, on behalf of the task groups, co-ordinated an Ontario-wide, 1999 cost survey of recycling, organic and HSW system costs for both single and multi-family dwellings. The survey was conducted with the assistance of the CAO Municipal Benchmarking Initiative, Municipal Waste Integration Network (MWIN), Association of Municipal Recycling Coordinators (AMRC), Composting Council of Canada (CCC) and Recycling Council of Ontario (RCO). The WDO is confident that while not perfect, these data represent the most thorough and comprehensive baseline yet established for Ontario's waste diversion efforts. The results of this survey provide the basis of the1999 costs estimates used in this report.

RBAC Disbursement

The Programs Committee also tackled the distribution of the Recyclable Beverage Alcohol Container (RBAC) funds to municipalities. One of the first actions the committee took involved the calculation and disbursement of funds related to the1999 results. The committee completed the task on February 28, one month ahead of schedule.

Based on a recommendation from the multi-stakeholder Municipal 3Rs in Ontario Fact Sheet / steering group, the Programs Committee linked the annual 3Rs call for municipal diversion information with the preparation undertaken to implement the 2000 RBAC funding program. Consequently, the WDO asked municipalities wishing to be eligible for 2000 RBAC funding to submit information on all 1999 diversion activities—including the requisite glass tonnage information. After a series of notifications, and an extension of the deadline by the WDO Board to allow every opportunity for municipal response, the final response rate to the combined 2000 RBAC survey was the best yet achieved in the five-year history of the program. Response to the joint survey on a tonnage basis jumped from the mid eighties in prior years, to 99.9% for 1999. With the WDO Board's approval, the RBAC funds not disbursed to the 16 municipalities representing the 0.1% that did not respond, were put back into the RBAC pool for redistribution among municipalities that did respond to the joint survey.

As detailed in section 3.2.4, the Programs Committee has identified a number of issues associated with the current criteria and formula for the calculation of the RBAC disbursement. These relate to:

- the possibility of discontinuing the current practice by some municipalities of including the RBAC containers recovered from the industrial, commercial and institutional (IC&I) sectors in the tonnages reported as eligible for funding;
- considering the disqualification in the RBAC calculation of glass that is collected for recycling but ends up in disposal for economic reasons; and
- recognizing unique circumstances arising in demonstration and innovative diversion systems (i.e. wet/dry).

Section 3.2.4 also sets out the recommended procedures for RBAC 2001 payments.

Summary of Round One & Two Projects Funded by the WDO

One of the primary tasks the MOU required of the WDO was for it to identify and provide immediate financial and technical support to expand and improve the cost effectiveness of municipal waste diversion programs.

With input from the task groups, the Programs Committee developed a "Guidelines for WDO Funding" process to ensure a consistent methodology for identifying, evaluating and selecting potential municipal projects for funding. These guidelines provided a framework for each task group to set specific goals and objectives for each material stream, to identify relevant information already in hand, to fast track projects where possible and to call for proposals based on the priorities set by each task group.

Standardized conditions and procedures for funding, such as project timing and the transferability of information were also applied to all applications the task groups received.

By April, the task groups and Programs Committee had finalized the guidelines, allocated budgets and selected priority issues that became the Round One Call for Proposals. The WDO Board made a total of $627,000 available for innovative proposals that focused on recycling and organic data gathering and the establishment of HSW depots for un-serviced areas.

Using the same funding guidelines as a foundation as well as with key learnings from Round One, the task groups developed new priorities and budgets for Round Two. This round focused on larger, innovative demonstration and implementation projects. The value of Round Two exceeded $1 million.

In total, the WDO received more than 200 project applications and 75 were approved for funding. The task groups spent many hours reviewing the merits of each proposal and through a consensus process made their recommendations to the Programs Committee. The committee integrated the task groups' recommendations, occasionally adjusting the budget allocations between projects and identifying opportunities to combine projects or to serve a particular geographic area of the province. The committee submitted these revised recommendations on funding to the WDO Board of Directors for final approval.

Once the board approved the applications, the WDO Secretariat notified successful and unsuccessful proponents and established purchase order agreements with each host municipality. The WDO assigned a project manager to each of these projects to provided contract management and serve as a liaison to the secretariat in evaluating the results of each project.

Table 1.1
Summary of Projects Funded by WDO Programs Committee in 'Round One' and 'Round Two'

Recycling Optimization - Round 1

Project #	Municipality/Organization	Project Name	WDO Funding
OPT-R1-01	Regional Municipality of Halton	Waste Audit	$15,000
OPT-R1-02	City of Peterborough	Waste Audit	$14,000
OPT-R1-03	Regional Municipality of Durham	Waste Audit	$15,000
OPT-R1-04	Township of Augusta	Waste Audit	$8,000
OPT-R1-05	Township of North Glengarry	Waste Audit	$8,000
OPT-R1-06	RMOC	Alternative Collection System	$15,000
OPT-R1-07	All Ontario Municipalities	1999 Diversion Cost Survey in co-operation with CAO Benchmarking Initiative/MWIN/AMRC	$35,000
0PT-R1-08	City of Toronto	Waste Audit	$25,000
OPT-R1-09	Regional Municipality of Sudbury	Waste Audit	$15,000
OPT-R1-10	Regional Municipality of Peel	Curbside Set-Out Study	$10,000
OPT-R1-11	County of Peterborough	Container Vacuum/Crusher Collection Unit	$15,000
		Total Funding OPT Round 1	$175,000

Recycling Optimization - Round 2

Project #	Municipality/Organization	Project Name	WDO Funding
OPT-R2-01	Region of Durham	Municipal Waste Composition Estimation Model and Waste Composition Study	$10,000
OPT-R2-02	Region of Halton	Completion of "Municipal Recycling Cost Allocation Model" and "IWM Tool"	$3,000
OPT-R2-03	City of London with Rehrig Pacific Company and CWS	Mixed Recyclables Rollout-Cart Demonstration Project	$50,000
OPT/ORG-R2 02	Markham/Guelph	Baseline Sampling of Material Densities	$5,000
OPT/ORG-R2-01	Markham with York, Toronto, CSR, and Miller Waste	Automated Cart-Based Collection System for Organics, Garbage and Recyclables	$40,000
OPT-R2-04	MRF Optimization Working Group	MRF Optimization Study	$50,000
OPT-R2-05	Northwest Ontario Recycle Association	Compact Your Troubles: Testing Recycling Compaction Collection Vehicle	$25,000
OPT-R2-06	Region of Peel 1	MinPro Crushed Glass Demonstration Project	$10,000
OPT-R2-07	City of Sault Ste. Marie	Residential Waste Audit	$15,000
OPT-R2-08	County of Simcoe	Seasonal Waste Composition Study for Streamed Programs	$15,000
OPT-R2-09	City of Toronto 1	Waste Audits to assess Improvements to Dufferin MRF and Commissioners Street MRF	$10,000
OPT-R2-10	City of Toronto 3	Mixed Broken Glass Market Development Study	$32,000
OPT-R2-11	Region of Sudbury	Multi Family Unit Recycling Enhancement	$10,000
OPT-R2-12	Region of Waterloo	Report on Automated Fibre Sorting Technologies	$25,000
		Total Funding OPT Round 2	$300,000
		Total Funding OPT Rounds 1 & 2	$475,000

Organics - Round 1

Project #	Municipality/Organization	Project Name	WDO Funding
ORG-R1-01	City of Peterborough	Compost facility siting study	$ 15,000
ORG-R1-02	Township of Augusta	BYC Composting Study (Task 2)	$ 2,700
ORG-R1-03	City of Toronto	Multi-family waste facility	$ 35,000
ORG-R1-04	Region of Peel	BYC sales in schools	$ 10,000
ORG-R1-05	Dufferin County	Impacts of user pay on organics collection	$ 25,000
ORG-R1-06	AMRC	Workshop Proceedings	$ 5,000
ORG-R1-07a	City of Orillia	Compost Markets Development	$ 5,800
ORG-R1-07b	City of Orillia	Compost Packaging	$ 5,000
ORG-R1-08	City of Guelph	Glass grinding technology	$ 6,010
ORG-R1-09	Quinte Waste Solutions	Multi-family organics source separation	$ 13,000
ORG-R1-10	City of Sault Ste. Marie	Waste Management Master Plan	$ 10,000
0RG-R1-11	City of Woodstock	Backyard Composting Study	$ 12,900
0RG-R1-12a	Region of Waterloo	92/93 Backyard Composting Survey Update	$ 4,500
ORG-R1-12b	Region of Waterloo	Compost Markets	$ 6,000
ORG-R1-13	Regional Municipality of Niagara	Co-collection Study	$ 50,000
ORG-R1-14	All Ontario Municipalities	1999 Diversion Cost Survey in co-operation with CAO Benchmarking Initiative/MWIN/AMRC	$ 20,000
		Total Funding ORG Round 1	$ 190,910

Organics - Round 2

ORG-R2-01	AMRC	Policies and Legislative Options to Optimize Residential Organics Diversion	$6,000
ORG-R2-02	AMRC	Organics Processing: Current Capacity and Options	$11,500
ORG-R2-03	Composting Council	Rules and Networks	$52,500
ORG-R2-04	Composting Council	Composting Awareness Week	$30,000
ORG-R2-05	Halton	Solid Waste Management Strategy	$10,000
OPT/ORG-R2 01	Markham / Toronto	Automated Cart-Based Collection System for Organics, Garbage and Recyclables	$60,000
OPT/ORG-R2 02	Markham / Guelph	Baseline Sampling of Material Densities	$4,650
ORG-R2-06	Orillia	Phase Two Expanded Organics Collection	$11,500
ORG-R2-07	Ottawa	Apartment Mixed Waste Processing Pilot (test Conporec's facility)	$22,500
ORG-R2-08	Ottawa	Market Development for L&YW Compost in Field Application for Production of Fruits & Veg.	$7,500
ORG-R2-09	Ottawa	Market Development for L&YW Compost in Greenhouse & Nursery Production	$7,500
ORG-R2-10	Ottawa	Market Development for L&YW Compost on Golf Courses	$7,500
ORG-R2-11	OWMA	Organic Waste Symposium	$2,500
ORG-R2-12	City of Peterborough	Exploration of Options for Organics Collection	$15,000
ORG-R2-13	Quinte Waste	Residential Depot Organics Collection Project	$15,000
ORG-R2-14	Simcoe	Seasonal and Urban-Rural Organic Waste Composition & Survey	$4,020
ORG-R2-15	Sudbury	Construction of L&YW Composting Pads	$75,000
ORG-R2-16	Toronto	Overcoming commercial barriers to development of organic material diversion facilities	$30,000
ORG-R2-17	Victoria	Expanded leaf and yard waste composting program	$10,000
ORG-R2-18	Waterloo	Composting emissions study	$20,000
ORG-R2-19	Seguin Township	Curbside Collection of Kitchen Organics demonstration	$4,200
ORG-R2-20	Amprior	Backyard Composting Useage Survey	$2,600
ORG-R2-21	Region of York	Plastic Film Extraction from a Processed Municipal Organic Residual Stream	$75,000
		Total Funding ORG Round 2	$484,470
		Total Funding ORG Rounds 1 & 2	$675,380

HSW - Round 1

Project #	Municipality/Organization	Project Name	WDO Funding
HSW-R1-02	Centre & South Hastings	Permanent HSW Depot in North Hastings	$ 25,000
HSW-R1-04	County of Peterborough	Two Permanent Seasonal HSW Depots	$ 22,250
HSW-R1-08	North Renfrew	Permanent HSW Depot at New Landfill	$ 7,125
HSW-R1-10	Victoria County	Permanent HSW Depot	$ 25,000
HSW-R1-13	City of Owen Sound	Permanent HSW Depot	$ 37,000
HSW-R1-14	Amalguin Recycling	Two Permanent HSW Satellite Sites at Landfill	$ 50,000
HSW-R1-16	City of London	Alternative Use for Latex Paint	$ 35,000
HSW-R1-25	Niagara Regiona & AMRC	HSW Composition and Characterization	$ 17,500
		Total Funding HSW Round 1	$ 218,875

HSW - Round 2

HSW-R2-01	Region of Niagara and AMRC		$13,000
HSW-R2-02	City of Sault Ste. Marie		$115,625
HSW-R3-03	1999 Diversion Cost Survey in co-operation with CAO Benchmarking Initiative/MWIN/AMRC		$20,000
		Total Funding HSW Round 2	$148,625
		Total Funding HSW RoundS 1 & 2	$ 367,500
		TOTAL FUNDING ALL PROJECTS	$1,517,880

1.1.2 Funding & Regulations Committee

Terms of Reference

An over-arching goal of the WDO is the preparation of recommendations with respect to the design of permanent arrangements to support the development of sustainable waste recycling and diversion programs in Ontario. The primary goals of the Funding and Regulations Committee include:

1. identifying options for a long-term, sustainable funding formula prescribing appropriate levels of annual financial contribution and appropriate sources of that contribution to support diversion programs as set out in the MOU;

2. assessing the need for regulation to support these recommended funding options and to ensure a level playing field within each affected industry sector.

The Funding and Regulations Committee met seven times as of August 9.

Accomplishments:

- ✓ Reviewed Canadian and international experience with product stewardship models.
- ✓ Developed Guiding Principles for the long-term funding formula.
- ✓ Reviewed and approved the 1999 material recovery rates for the province.
- ✓ Reviewed and approved the five-year material recovery rate projections.
- ✓ Reviewed and approved the 1999 baseline of net costs of municipal residential recycling costs.
- ✓ Reviewed and approved the five-year projection of net costs of municipal residential recycling costs.
- ✓ Received and reviewed the WDO consultation inputs.
- ✓ Developed preliminary recommendations for the structure of the proposed WDO municipal financial support for municipal residential materials recycling:
  - •• calculate net costs
  - •• calculate costs by material
  - •• develop the structure of the proposed incentive-based payments to municipalities.
- ✓ Reviewed and approved preliminary cost estimates for:
  - •• organic waste diversion
  - •• HSW management costs.
- ✓ Developed preliminary options for industry and municipal enforcement mechanisms.
- ✓ Developed preferred model for allocation of WDO financial support for municipal recycling programs.
- ✓ Established industry/municipal working group for continued refinement of WDO municipal funding allocation model.
- ✓ Reviewed and approved Combined Guiding Principles for municipal recycling, HSW and organic diversion.
- ✓ Reviewed and approved WDO committee projections for material recovery and associated costs for recycling, organics and HSW programs.
- ✓ Reviewed and modified recommendations from WDO task groups related to long-term funding arrangements for organics diversion and HSW programs.
- ✓ Developed recommendation on allocation of costs between industry and municipalities.
- ✓ Developed recommendations on continuation of WDO programs.

- ✓ Developed recommendations on proposed funding arrangements and regulations for consideration by the WDO Board.
- ✓ Reviewed and approved the recommendations on changes to the RBAC funding program.

Guiding Principles for the Development of Long-Term, Sustainable Funding Mechanisms

In order to guide the work of the WDO, the Funding and Regulations Committee developed the Guiding Principles for a Long-Term, Sustainable Funding Formula for municipal residential recycling programs. The Minister of the Environment received these guiding principles in April. The WDO subsequently revised this document to incorporate consideration of organic waste diversion and HSW management programs and the WDO Board of Directors approved the resulting Combined Guiding Principles document on August 9. A copy of the final document is included as Appendix 3 of this report.

Sharing the Costs of Waste Diversion Programs

In addition to the detailed analysis completed of residential materials recycling programs, the Funding and Regulations Committee reviewed the work of the WDO Programs Committee related to organic waste diversion and HSW management. Based on the recommendations developed by the Funding and Regulations Committee, the WDO Board subsequently approved the recommendations to the Minister regarding the sharing of the net costs for municipal waste diversion programs for an initial five-year period. It is further recommended that these cost allocations, along with the need for continuation of the WDO, be reviewed at that time.

	Industry	Municipalities
Residential Recycling	50%	50%

Qualifier:
subject to the distribution of funds according to the agreed to WDO funding allocation model (see below)

	Industry	Municipalities
HSW Management	50%	50%

Qualifier:
subject to an ongoing review of the designated HSW materials to be included in municipal recovery programs

	Industry	Province/Municipalities
Organic Diversion	50% of paper related costs (which comprise approximately 16% of the targeted organic stream)	Each share 50% of remainder of organic diversion system costs

Qualifier:
applicable where sanitary and other low-grade papers are included in the compost stream. Industry is not expected to contribute to the costs of food and/or yard and garden waste diversion programs. The preliminary assumption is that sanitary and low grade papers (i.e. paper towels) represent approximately

16% of the targeted organic wastes, with industry contributing up to 50% of the costs of managing these specific materials.

WDO Financial Support to Municipalities

The Funding and Regulations Committee developed a broad consensus on how WDO funds would be allocated to support municipal residential recycling programs, subject to the conditions identified below.

The WDO proposes to utilize a funding allocation model to calculate appropriate support payments to Ontario municipalities that takes into consideration key program variables including population density, number and type of materials collected, material mix and composition. A brief summary of the primary steps used to calculate appropriate municipal payments follows:

Step 1 – Calculate Baseline Costs to be Used as the Ontario Reference Program

- calculate of the annual net cost of municipal recycling programs for the province as a whole;
- divide this annual net cost by the total tonnes of recyclables recovered in the province;
- calculate the coverage mix of materials to be used in the 'basket of goods' in the reference community material mix;
- set the costs to collect and process each material, calculated on a material-specific basis (taking into consideration volume, weight and operational issues) which will then be blended into a single per tonne calculation for payment to municipalities;
- input the current market value for each of the recovered materials (based on a survey of actual province-wide market values).

Step 2 –Calculate Individual Municipal Payments

- input the quantities of each material collected and marketed by reporting municipalities (actual individual municipal costs would not be required for the model);
- the financial payments due to individual municipalities calculated by the model would be modified by their population density, the materials included and their relative proportions;
- work is continuing on developing a further modifier, likely to be based on the cost of delivering recovered materials to market;
- 90% of the calculated payment would be distributed directly to municipalities; either as direct payment or in-kind support (see Section 5.6);
- the remaining 10% of the 50% industry share of total costs would be used by the WDO to provide bonuses to reward superior performance and/or to promote increased efficiencies in existing municipal programs through system re-engineering.

Given that further refinements to the model are still required, the WDO Board has accepted in principle the recommendation that this model be further developed in cooperation with the Association of Municipalities of Ontario (AMO), as the basis for distribution of WDO funds in support of municipal recycling programs, subject to:

(a) a trial run of the model using the reported 1999 costs for the majority of municipal recycling programs in the province;

(b) continued refinement and agreement to the population density factors, which will influence the range of per tonne fees paid to municipalities;

(c) for 'year one', the accepted 'efficiency standard' will be equal to 90% of the calculated average cost of all Ontario municipal residential recycling programs included in the WDO program;

(d) reserving 10% of the industry share of funds to be used by the industry stewardship organization to promote and recognize improved cost effectiveness performance in municipal recycling programs and pilot projects; and

(e) *annual review and re-calibration, as required, of the key data used in the model.*

Industry Enforcement Mechanisms

Given the order-of-magnitude cost estimates of what will be required to fund the anticipated WDO support programs, the WDO Board strongly recommends that the Government of Ontario implement adequate enforcement mechanisms to ensure that the actions to be taken and the funds required from industry are secured.

Among the representatives that have participated in the WDO process to date, the following sectors specifically and strongly endorse the need for backdrop regulations to ensure that sufficient funds are raised and to promote a level playing field among competing companies:

- the packaging chain (retailers, brand owners, suppliers)
- HSW product manufacturers and retailers
- non-prescription drug manufacturers
- municipalities
- Recycling Council of Ontario

Representatives of some industry sectors have expressed support for non-regulatory approaches to meet their sector's share of responsibility for achieving the overall provincial goal of 50% waste diversion, including:

- Canadian Newspaper Association
- Ontario Community Newspaper Association
- Rechargeable Battery Recycling Corporation

The Retail Council of Canada, before withdrawing from the WDO process, took the position that the responsibility for financing waste management programs, including waste diversion, should rest solely with municipalities.

Given this range of views, the Funding and Regulations Committee focused its attention on developing an approach to enforcement that would promote a level playing field among industry sectors, while providing flexibility on how these mechanism might be implemented. The preferred approaches developed for each designated waste stream, and approved by the WDO Board, are identified in Section 6 of this report.

Municipal Enforcement Mechanisms

Even assuming the provision of financial and technical support from the WDO, it is projected that additional enforcement mechanisms are likely to be required to ensure that municipalities implement new programs in support of the provincial goal of 50% waste diversion and HSW management.

Following on from the recommendations of the Funding and Regulations Committee, the WDO Board recommends that the Government of Ontario implement mechanisms to ensure that municipalities establish the programs recommended by the WDO in support of the province's waste diversion and HSW management objectives, and to make the costs of these programs visible to their residents.

The key elements of these municipal enforcement mechanisms would include consideration of :

1. extending the minimum waste diversion service requirements to include expanded organic waste diversion and appropriate HSW access and recovery services;
2. enacting regionally-appropriate bans on organic waste disposal in landfill sites;
3. requiring municipalities to calculate the costs of local waste management and waste diversion services and to notify residents of these costs; and
4. requiring those municipalities that achieve less than a 50% waste diversion rate (based upon the base year of 1987) by 2005 to implement incentive schemes (such as bag limits or user fees), or alternatively, to have their WDO financial contribution reduced.

Review of the Existing Provincial 3Rs Regulations

Also following from the work of the Funding and Regulations Committee, the WDO Board further recommends that a task group be established under the auspices of the WDO, with representation from the Ministry of the Environment, municipalities, non-governmental organizations and industry to review the existing provincial 3Rs Regulations.

Key elements of this review to include consideration of:

1. completion of a lifecycle inventory of the environmental costs and benefits of achieving a 50% waste diversion goal on a province-wide basis and secondly, completing a lifecycle inventory in a representative sample of individual municipalities;
2. a review of the minimum number of materials required to be included in municipal recycling programs with consideration given to:
   - (a) eliminating materials in some regions (such as glass) where environmental costs may exceed the environmental benefits achieved; and
   - (b) expand the minimum number of materials to be included in municipal recycling programs;
3. a review of any requirement to provide for the separate collection of organic wastes in northern municipalities;
4. a review of the minimum population thresholds established for municipal waste diversion programs;

5. mandatory procurement requirements for products manufactured from recovered waste materials; and

6. a review of acceptable economic uses for recovered waste materials.

1.1.3 Communications Committee

Terms of Reference

The Communications Committee is charged with the overall responsibility of ensuring that the activities and progress of the Waste Diversion Organization are communicated in an efficient and effective manner to the various audiences in the province who are interested in waste diversion matters. In addition, its mandate covers five major tasks:

- developing and implementing a strategic communication plan for the WDO that guides the communication activities of the organization, including providing strategic communication direction to the WDO Board, Committees and Task Groups;
- coordinating the WDO stakeholder consultation and outreach programs;
- producing the WDO newsletter, The WDO Link, which constitutes the quarterly communication with major stakeholders;
- developing and implementing a strategic plan to make effective use of the advertising space provided by the Canadian Newspaper Association, and subsequently the Ontario Community Newspaper Association; and
- supporting the Composting Council of Canada in the development of its promotional activities, including Compost Awareness Week.

The Communications Committee comprises 13 members from across Ontario. They are municipal mayors, senior elected officials, municipal professional staff, corporate presidents, senior industry specialists and an environmental advocacy leader. The committee met eight times from January through May.

Accomplishments:

- ✓ Developed WDO web site.
- ✓ Negotiated agreement with Composting Council of Canada to fulfill commitment in Memorandum Of Understanding to provide support for Compost Awareness Week.
- ✓ Developed WDO strategic communication plan.
- ✓ Created a comprehensive e-mail/facsimile distribution network to connect instantly with municipalities throughout Ontario.
- ✓ Contracted with the Recycling Council of Ontario to organize and facilitate phase one and phase two of the stakeholder consultation process.
- ✓ Jointly with 10 industry associations and corporations, developed an outreach program to promote awareness and understanding of the achievements and benefits of recycling in Ontario. This took the form of a direct mail promotion piece and poster distributed to elementary schools across Ontario, an interactive web site called *Celebrate Earth Week*, and an eight-city school tour.
- ✓ Produced and distributed first and second quarter communication, *The WDO Link*.
- ✓ Coordinated and distributed the WDO Guiding Principles document.
- ✓ Developed a strategic communication plan and advertising strategy for the advertising space donated by Ontario members of the Canadian Newspaper Association (CNA).
- ✓ Prepared speeches and presentations for board and committee members.

- ✓ Held two stakeholder consultation meetings: one in the north (Thunder Bay) and one in the south (Toronto).
- ✓ Developed and focus-group tested a series of advertisements to promote overall waste diversion in Ontario; to be used by both the WDO and municipalities in the space contributed by daily newspapers.
- ✓ Developed and distributed a document detailing eligibility criteria for municipalities to use the advertising space contributed by Ontario members of the CNA.
- ✓ Coordinated WDO Interim Report and posted to web site.
- ✓ Developed program of advertising support from Ontario's community newspapers for municipalities.
- ✓ Developed two compost awareness advertisements for distribution to Ontario daily newspapers.
- ✓ Coordinated WDO September 1 Report.
- ✓ Posted WDO September 1 Report to the WDO web site.

Disseminating Information and Outreach

The WDO Link

A key activity of the committee has been to produce and distribute the WDO's newsletter, *The WDO Link*. Published quarterly, The Link provides a detailed documentation of the WDO's progress towards its goals. By mid-July, the committee had distributed two of the four issues it is to publish in 2000. The newsletter is distributed to about 1,200 municipal and industry people in Ontario, as well as those interested in the WDO and community waste management issues. The next issue of The Link will follow on the heels of this September 1 Report and the final issue will be published in December.

Web site and Networks

One of the first tasks the committee tackled was the establishment of a web site, www.wdo.on.ca. The contents of the site are updated continuously with new information and documents. To ensure that information about WDO activities received wide circulation, the committee also established information dissemination links through the Recycling Council of Ontario (RCO) RE-News system (reaching some 1,000 readers) and the Association of Municipalities of Ontario (AMO) which provides a direct connection to municipalities.

To facilitate effective communication with key solid waste management personnel in municipalities and with members of municipal councils, the committee developed a combination email/facsimile distribution system that ensures information, such as the WDO Calls for Proposals, stakeholder consultation process and the Municipal Advertising Criteria Application is instantly delivered into municipal hands.

Communication Materials and Outreach

Through the WDO Secretariat, the committee also provides an essential service to the WDO committees and task groups by preparing and editing a wide range of program and project communication materials, including letters, key milestone documents such as the guiding principles, Interim Report, project descriptions and speeches. Speaking engagements for WDO Board members, committee representatives and secretariat staff have included various industry sector and municipal meetings, such as the Municipal Waste Integration Network, an organization composed of municipal and waste management business representatives and the Association of Municipalities of Ontario. The committee developed the WDO strategic communication plan to ensure that such communication vehicles contained the organization's key messages.

Stakeholder Consultation

Part of the Communications Committee's work has entailed ensuring that interested parties have opportunities to participate in the WDO process and to comment on the key products of its work. Toward that end, the committee initiated and co-ordinated the stakeholder consultation program.

The committee contracted with the Recycling Council of Ontario (RCO) to organize and facilitate the program. It consisted of two stages:

- the first stage solicited comments on various options in the eligibility criteria that determined how funds would be allocated to municipalities to support residential recycling systems;
- the second stage provided interested parties with the opportunity to comment on the Interim Report after it was delivered to the Minister of the Environment.

The RCO, using the broad range of WDO and AMO distribution systems, as well as its own lists and networks, developed and disseminated information promoting the consultation process. Under the guidance of the WDO Communications Committee, it developed a *Backgrounder and Points for Discussion* paper to stimulate discussion around municipal eligibility criteria.

First, it encouraged written comments and second, it offered interested parties an opportunity to attend one of two stakeholder consultation meetings. The WDO held the first of these forums in Thunder Bay (May 4) in connection with the Northwestern Ontario Municipal Association meeting. The second forum took place in Toronto on May 8.

Based on the input from the two forums and the written submissions, the RCO summarized comments, opinions and suggestions in a report tabled for information at the June 14 WDO Board of Directors' meeting. The WDO, through its Funding and Regulations Committee, used the suggestions contained in the report to develop the long-term funding formula to support residential recycling in Ontario and to establish recommendations for allocating funds to municipalities to support waste diversion programs.

Another component of stakeholder discussion occurred at a meeting with various representatives of environmental non-government organizations in Ontario. Facilitated on behalf of the WDO by the Toronto Environmental Alliance, the meeting took place on June 12 in Toronto and included representatives from the following organizations: Great Lakes United (Hamilton), Citizen's Network on Waste Management, Rural Action, University of Toronto, Toronto Environmental Alliance, Guelph Environment Network, Canadian Environmental Law Association, North Watch, CIELAP, Recycling Council of Ontario.

The environmental groups' comments and suggestions focused on four primary areas:

- incentives must be sufficient to motivate industry to reduce waste through packaging re-design;
- industry must be held accountable if it does not meet the requirements of the funding formula;
- northern municipalities must be treated in a manner that does not penalize them by measuring them against performance benchmarks which they cannot meet because of factors such as sparse populations and distance to markets, and
- regulations must be put in place to ensure a level playing field within the industry sectors involved in this process.

The final phase of consultation occurred as the Interim Report was delivered to the Minister of the Environment on June 30. The WDO invited comments on the report. In all, the WDO distributed for comment more than 500 copies of the report. These were either downloaded from the WDO web site, were sent to WDO committee and task group members or were sent to individuals or organizations on request.

The WDO received 19 separate written submissions offering comments. A summary of the submissions, prepared on behalf of the WDO by the Recycling Council of Ontario, is included as Appendix 5 in this document, along with notations from the WDO concerning how it has addressed the major points. The submissions that were sent as, or could be acquired as electronic copies, are included on the WDO web site.

In keeping with its policy of information circulation, the WDO will post the September 1 Report on the web site and make individual hard copies available on request.

Effective Use of Advertising Space

In close cooperation with the Canadian Newspaper Association (CNA), the Communications Committee developed a plan to allow municipalities to apply to use the advertising space that has been made available by the Ontario daily newspaper members of the CNA. Municipalities have begun to apply for use of the space, using the criteria and application procedures established by the WDO.

The plan provides for about 60% of the 453,000 lines of advertising space to be available for the use of local municipalities. The remaining space is being held in reserve by the WDO for ads that promote overall waste reduction as well as ads that support the Composting Council of Canada (as per the agreement in the Memorandum of Understanding) and the Recycling Council of Ontario's Waste Reduction Week.

It is expected that the bulk of applications will flow to the WDO in the third and fourth quarters. The WDO sent a reminder to municipalities requesting that they indicate, by early September, their intentions to use the space. This will ensure that space is reserved for them. The WDO will utilize all unbooked space to promote waste diversion recycling, composting and HSW activities.

Municipalities may develop ads at their own cost, or they can use a selection of generic waste reduction ads created by the WDO. Tested for effectiveness in focus groups and produced by a professional graphics firm, the ads have been posted on the WDO web site in a section entitled the "WDO AD SHOP." Municipalities can "shop" the ads and choose the ones they wish to use. Additional ads will be posted to the web site in the coming weeks. The WDO ads are included in Appendix 6.

The Communications Committee has set up a tracking and monitoring system to ensure that applications are processed quickly and the space is used effectively and completely.

Community Newspapers Contribute Space

On behalf of the Communications Committee and the Board of Directors, the secretariat initiated discussions with the Ontario Community Newspaper Association to explore the opportunity for this sector of the newspaper industry to make a similar contribution of space to help promote greater waste reduction in Ontario.

Through its organization, the Ontario Community Newspaper Association (OCNA), the industry committed to providing a contribution of advertising space at "no charge" to help municipalities promote waste diversion activities. The space is valued at $300,000 and is to be used in the balance of 2000. The community newspaper industry has also offered to provide web site links to municipal waste management program sites, where these are available. The WDO informed municipalities of the new resource and expects to begin receiving applications for this space early in the third quarter.

Composting Council of Canada

The committee undertook discussions with the Composting Council of Canada (CCC) to establish support for Compost Awareness Week and other CCC objectives, as indicated in the Memorandum of Understanding. The support consists of two components: $30,000 to assist in promoting composting awareness in Ontario and advertising space valued at $100,000 (from the contribution made by the Canadian Newspaper Association). The Council and the WDO collaborated on the creation of two newspaper advertisements, one promoting the benefits of using compost and the other promoting the composting of fall leaves. The WDO will place these ads in provincial dailies beginning in September.

1.2 WDO Second Quarter Financial Report

The following three tables represent: the contribution (pledges) made by industry to support the WDO, the original WDO budget, and the second quarter results and current forecast for 2000.

Table 1.2

Pledges to Support the Waste Diversion Organization

Pledges	CSR $	CPCA $	CMCS $	LCBO $	CNA $	OCNA-$	Total $
30-Jan-00	500,000	50,000	50,000	5,000,000	50,000		5,650,000
31-Mar-00	875,000	37,500	37,500				950,000
30-Jun-00	875,000	37,500	37,500				950,000
30-Sep-00	875,000	37,500	37,500				950,000
01-Nov-00				4,000,000			4,000,000
30-Dec-00	775,000	37,500	37,500				850,000
Total Cash Pledges	**3,900,000**	**200,000**	**200,000**	**9,000,000**	**50,000**		**13,350,000**
Pledges in Kind		50,000	50,000		1,000,000	300,000	1,400,000
Total Pledges	**$3,900,000**	**$250,000**	**$250,000**	**$9,000,000**	**$1,050,000**	**300,000**	**$14,750,000**

CSR - CSR Corporations Supporting Recycling
CPCA - Canadian Paint & Coating Association
CMCS - Canadian Manufacturers of Chemical Specialties Association
LCBO - Liquor Control Board of Ontario
CNA - Canadian Newspaper Association
OCNA - Ontario Community Newspaper Association

Table 1.3

Original WDO Budget Approved by the Board for the Year 2000

	Advertising	LCBO Funding	Optimization	HSW	Organic	Admin	Total
MOU ALLOCATION **SERVICE & PROJECTS**	**$1,000,000**	**$8,000,000**	**$2,000,000**	**$1,000,000**	**$2,000,000**	**$500,000**	**$14,500,000**
LCBO Grants		8,000,000					8,000,000
Administration						460,731	460,731
WDO Process, Executive and Secretariat Services			351,840	175,920	351,841		879,601
Implementation Support		50,000	216,525	108,262	216,525		591,312
Ongoing CSR Demonstration Programs			804,355	101,875	150,000		1,056,230
Projected New Program Expenses			729,670	407,528	1,274,928		2,412,126
CNA Advertising Support	1,050,000						1,050,000
TOTAL SERVICES & PROJECTS	**$1,050,000**	**$8,050,000**	**$2,102,390**	**$793,585**	**$1,993,294**	**$460,731**	**$14,450,000**
Variance to MOU	**$50,000**	**$50,000**	**$102,390**	**($206,415)**	**($6,706)**	**($39,269)**	**($50,000)**

Table 1.4

Waste Diversion Organization Second Quarter Results & Current Forecast for 2000.

	Advertising	LCBO Funding	Optimization	HSW	Organic	Admin	Total	Current Forecast
ANNUAL BUDGET **SERVICE & PROJECTS**	**$1,050,000**	**$8,050,000**	**$2,102,390**	**$793,585**	**$1,993,294**	**$460,731**	**$14,450,000**	**$14,797,754**
	YTD	**YTD**	**YTD**	**YTD**	**YTD**	**YTD**	**YTD**	
LCBO Grants		3,999,996					3,999,996	$8,000,000
Administration						234,360	234.360	$486,031
WDO Process, Executive and Secretariat Services			253,003	113,910	264,113		631,026	$927,055
Implementation Support	105	19,900	137,589	76,973	71,597		306,164	$566,312
Ongoing CSR Demonstration Programs			365,995	34,096	36,900		436,991	$1,087,848
Projected New Program Expenses			5,679		44,073		49,752	$2,380,508
CNA Advertising Support	24,466						24,466	$1,050,000
Ontario Community Newspapers								$300,000
TOTAL SERVICES & PROJECTS	**$24,571**	**$4,019,896**	**$762,266**	**$224,979**	**$416,683**	**$234,360**	**$5,682,755**	**$14,797,754**
YTD Budget	**$38,000**	**$4,030,000**	**$1,133,333**	**$334,299**	**$861,768**	**$226,366**	**$6,623,766**	
Variance	**($13,429)**	**($10,104)**	**($371,067)**	**($109,320)**	**($445,085)**	**$7,994**	**($941,011)**	

As specified in the MOU, the corporation's audited financial statements will be submitted to the Ministry of the Environment after the year-end.

Part II

Requirements of the MOU Still Outstanding

2.0 Key Tasks to be Completed

With the presentation of this report to the Minister of the Environment, the WDO has completed all but a few of the tasks required of it in the MOU. The following describes the tasks which remain to be completed.

2.1 Board of Directors

Tasks to be Completed:

- Meeting with Minister to review report.
- Review and approve the third and fourth quarter newsletter communication, "The WDO Link."
- Review report and make recommendations on proposed governance of a permanent WDO.
- Approve the final report describing 'year one' WDO activities.
- Review and approve the WDO Audited Financial Statements.
- Review and approve the WDO transition plan (if appropriate).
- Receive and approve in principle, the WDO Communications Strategy for 2001.

More detail on the procedures that will be used to complete these are included later in this section.

2.2 Programs Committee

2.2.1 Round Three Project Priorities

The third and final round of funding under the WDO will take place in the fall of 2000. In mid-September, the Programs Committee will finalize its priorities and these are expected to focus on:

- *Implementation Support.* Rounds One and Two emphasized municipal research and demonstration projects with some implementation support. Round Three will focus on support for the full-scale implementation of projects that will lead to cost savings and increased diversion.

- *Market Development.* The diversion scenarios presented in this report are all dependent upon the capacity of recycling and compost markets to absorb the "new" tonnes of secondary materials that will be recovered. Several comments received in response to the WDO Interim Report stressed that more emphasis and resources should be directed to market development, particularly in the area of organic waste.

- *Multi-Family Diversion Systems.* According to an August 2000 RCO report on multi-family recycling in Ontario, the capture rate of recyclables in apartment units, allowing for smaller family size, is not more than one half of that achieved for single-family dwellings. The opportunity clearly exists to increase multi-family recycling significantly, with the potential for per tonne costs to be lower than for single family dwellings. The need to introduce effective methods of organic diversion from multi-family units is also apparent if the provincial waste diversion goal is to be achieved.

The request for municipal proposals will be issued on September 21, 2000 with a deadline for submissions of October 20th.

The total funding available for Round Three is $717,720.

2.2.2 Revisions to Interim Five-Year Plans Pending Results of WDO Funded Projects

As improved data become available from WDO-funded Round One and Two projects, the results will be used to modify the recycling, organic diversion and HSW five-year plans.

In the area of recycling, the results of several WDO-funded projects—such as the CAO Cost Study and the RCO Multi-Family Recycling Survey— already have been of assistance in the preparation of the Interim Recycling Optimization Five-Year Plan. Other key projects underway such as waste audits, material density studies, material recovery facility (MRF) optimization and demonstrations of innovative collection technologies will also provide up-to-date information that can be used to fine tune the WDO five-year plans by year-end.

Data from the WDO-funded organic diversion projects are urgently required for input into the emerging WDO Organics Interim Five-Year Plan. For example, the diversion projections used for the 'Middle Ground' and '50% Diversion' scenarios presented in Section 4, and in more detail in the appendices, are based on the theoretical estimated capture rates of organics from multi-family sources. Trials funded by the WDO will be critical to refining these key assumptions. Additionally, based on an extensive literature search in the area of backyard composting, the task group has downgraded the diversion estimates previously presented in the Municipal 3Rs in Ontario Fact Sheet. The field results achieved through three WDO-funded Round One organics diversion projects will verify or fine tune these 'write-downs.'

All of the task groups recognize the vital role that market development must play in achieving the goals outlined in the five-year plans. Market development studies are underway for a number of materials, including compost, paper fiber, paint and glass to assess the potential for expanding end-uses and to improve revenues received for these materials.

2.3 Communications Committee

Key Tasks to be Completed:

- Develop three more advertisements for use by WDO and municipalities in the daily and community newspaper ad program.
- Ensure ad space is fully utilized by municipalities and/or the WDO
- Prepare and distribute news release on WDO September 1 Report.
- Prepare third quarter communication.
- Prepare and distribute news releases on project funding support to municipalities.
- Prepare fourth quarter communication.
- Assuming the continuation of the WDO, communications will present a draft plan for communications and education support for 2001 at the October 11 Board of Directors meeting.

2.4 Audited WDO Financial Statements

As specified in the MOU, the WDO is required to produce audited financial statements at the end of the first year of activities. Accordingly, the Board of Directors appointed BDO Dunwoody Chartered Accountants as the auditors for the corporation. The WDO's fiscal year-end is December 31, 2000. The WDO expects to receive the completed audited financial statements for approval by the board no later than February 15, 2001.

The MOU states in Part III section 19 that:

> *"The Corporation shall prepare a report describing its activities carried out pursuant to this MOU and the effectiveness of such activities. The report shall include a section on the implementation of the LCBO funding program. The report shall be submitted to the Minister and the Minister shall make the report available to the public. This report shall deal with the first twelve months of activities of the Corporation or such longer period, not to exceed 14 months, ending at the end of the Corporation's fiscal year. The report shall be submitted within 30 days of the end of the period it deals with.*

Section 20 of the MOU states that:

> *"The Corporation shall engage the services of a qualified auditor to conduct an audit of the books and records of the Corporation in accordance with accepted accounting standards and practices and to prepare a report of the audit. The report shall be submitted to the Minister and the Minister shall make the report available to the public. This report shall deal with the first twelve months of activities of the Corporation or such longer period, not to exceed 14 months, ending at the end of the Corporation's fiscal year. The report shall be submitted within 30 days of the end of the period which it deals with.*

Section 21 of the MOU then gives the option to combine these two reports into a single report.

Based on the time that will be required to prepare audited financial statements and other documentation necessary for the year-end activity report, this report, including the audited financial statements, will be submitted to the Minister no later than February 28, 2001.

2.5 WDO Year-End Activity Report

In addition to the recommendations submitted in this report, the WDO is required to submit a report to the Minister:

- •• describing its first 12 months of activities carried out pursuant to the MOU and the effectiveness of such activities; and
  - •• an audit report of the books and records of the corporation.

Furthermore, it is the intent of the WDO to report on the results received from the various studies, pilots and implementation work funded by the WDO in its initial year and to use this information to revise, as required, the implementation plans developed for recycling, HSW and organic waste diversion.

All of this information will be combined into a single year-end activity report that is expected to be submitted to the Minister no later than the end of February 2000.

Part III

Recommendations With Respect to Longer-Term Arrangements for the WDO

3.0 Recommendations With Respect to the Design of Longer-Term Arrangements for the WDO

3.1 Continuation of the WDO

The November 1999 Memorandum of Understanding (MOU) created the WDO to implement the programs outlined in the document. The stated purpose was:

> *"The MOU describes a voluntary arrangement in which the LCBO and associations representing companies responsible for products and packaging which is recycled or diverted through Blue Box and other recycling and diversion programs will demonstrate product stewardship by providing funding for programs and activities. This is a temporary arrangement, intended to last approximately one year until replaced by more permanent arrangements. Among the tasks for the initial year is the preparation of recommendations with respect to the design of these longer term arrangements."*
>
> *"It is the intention of the Minister of the Environment to work towards the establishment of a formal structure for the future governance and administration respecting the continuation of the programs described in this MOU. It is desirable that this structure be designed and operated so as to provide a level playing field within each affected industry sector."*

It is our assessment that the work completed by the WDO to date, including:

- the exceptional contributions made through the multi-stakeholder committees;
- the ambitious and extensive range of projects that have been funded and will be completed by municipalities throughout the province, and
- the in-depth, professional support provided through the secretariat

has proven the need for and value of a permanent WDO organization. This is especially so given the extraordinarily limited time frame set by the MOU. The WDO Board of Directors recommends that the Minister of the Environment make arrangements for the continuation of the WDO beyond the one-year voluntary agreement to provide support to Ontario municipalities to achieve the provincial target of 50% diversion of waste from disposal.

It is equally clear, however, that the longer-term goals and objectives set for the WDO and the waste diversion goals set for the province itself cannot be met unless the Government of Ontario is prepared to implement the various enforcement mechanisms identified in Section 6. As exceptional as this effort has been to date, the financial and waste reduction targets set out in this report cannot be achieved through voluntary action alone.

If the Government of Ontario is not willing to become a partner in this process through implementation of the level playing field mechanisms required, the WDO will cease its activities upon submission of its year-end report.

This section also outlines recommendations related to the continuation of the specific programs and activities set out in the original MOU.

The future governance and administration of these programs is also a critical issue, but one that the WDO has not yet had time to address. How the WDO intends to tackle this issue is also detailed below.

3.2 Programs Addressed in the MOU That Should Continue

3.2.1 Recommendations Related to Municipal Recycling

Part IV of the MOU states that the role of the WDO with respect to municipal recycling programs is:

> *"To expend up to $2 million towards the development and implementation of a program to improve the effectiveness and efficiency of Blue Box and other municipal recycling and waste diversion programs", in particular:*
>
> - *Rationalization of MRFs*
> - *Planning for MRF capital improvements*
> - *Optimization of collection rates*
> - *Investigation of innovative collection techniques*
> - *Improve multi-family diversion*
> - *Standardize accounting*
> - *Optimize transport to markets*
> - *Market development*

As part of an integrated strategy to expand diversion programs, the WDO Recycling Optimization Task Group tackled the development of a strategy to divert an additional 200,000 to 335,000 tonnes of recyclables over and above the calculated 1999 materials diversion rate.

The Interim Recycling Optimization Five-Year Plan for achieving this goal is presented in Appendix 4.

The task group's work concluded that the estimated contribution from materials recycling that would be required to meet the province-wide '50% diversion' scenario is achievable with the support of the significant regulatory and behavioral changes as described in the five-year plan.

The task group also identified numerous areas of research that are required to further refine the preliminary estimates presented in the five-year plan and to address key issues which could not be fully answered at this time. Some of the key questions that will require ongoing research and should be part of the work plan of any future WDO include the following points.

Optimizing the Provincial Network of Material Recovery Facilities. More than 60 material recovery facilities (MRFs) that process dry recyclable materials exist in the province. The 10 largest facilities process more than half of the material in the province. The remaining facilities are mid to smaller size. Some facilities operate only on a part-time basis only as sufficient material is collected for processing.

Two fundamental questions over the next five years are:

- is new MRF capacity required to process the projected additional tonnage that will be collected in the future, and
- how can the processing network be optimized?

One of the major WDO projects currently underway is the MRF Optimization Study that will address these and related questions. It is expected that the results of this work and the implementation of the recommendations to follow will be a critical issue for the WDO.

Multi-family Recycling. A critical challenge in terms of the future growth of the recycling system in the province is increasing recovery from the multi-family (MF) sector. Since almost 30% of households in the province are multi-family, two specific issues are:

- how to improve the performance of existing MF recycling programs, and
- how to add new programs in a way that is both cost effective and high performing?

Existing buildings can be retro-fitted to accommodate recycling (i.e. chute systems for recyclables), but usually only with high capital costs. Some municipalities require new high-rise buildings to provide the opportunity to recycle in a form that is as convenient as the disposal system. Adding the MF sector to the provincial recycling system in a way that is cost effective and high performing is the next stage of evolution in the province's residential material recycling system.

Market Development. All of the recycling scenarios developed by the WDO assume the recovery of materials not yet collected widely in the province. Two of these key materials are mixed residential fibers (e.g. boxboard and corrugated boxes) and mixed household plastics (e.g. HDPE). Mixed fibers are especially important given the significant quantities remaining in the waste stream that these materials represent (old newspaper, by contrast, has little room for new growth given that capture rates—at least from single family households—are already reasonably high). Traditionally, markets for mixed residential fibers have gone "soft " as the economy slows. Since mixed fibers will be such an important part of new growth in recycling, stabilizing markets for this material will be especially important in the future.

The other anticipated growth area is that of mixed plastics. As plastics continue to replace more traditional materials (such as glass and steel) in the packaging stream, the overall weight of packaging declines, but some of these materials are more expensive to recover through municipal recycling programs. The WDO is working with the plastics industry in Ontario to prepare a market development strategy for plastics.

Continued (and stable) growth in the value of the "basket of goods" collected in recycling programs is fundamental to reducing total system costs.

Integrating Recyclables, Organics and Special Waste Diversion. Integrating the three waste streams (recyclables, organics and HSW) into a diversion strategy is another core challenge for the Ontario waste diversion system. The municipal recycling collection infrastructure is well established and can be further extended. A key issue, however, will be to link the three growth areas especially the new and improved organics collection systems. Ontario has been an innovator in the development of co-collection systems (i.e. the collection of recyclables with organics and/or with regular household garbage). It is anticipated that the next stage of system growth will need to continue to experiment with and adopt cost-effective approaches to integrated diversion systems including, where appropriate, the inclusion of packaging and materials now considered part of the HSW programs.

3.2.2 Recommendations Related to WDO-Recyclable Beverage Alcohol Containers Program

As specified in the MOU, the WDO took on responsibility for disbursement of funds contributed by the LCBO to offset the costs of managing recyclable beverage alcohol containers (RBAC).

Funds attributable to 1999 costs were distributed to Ontario municipalities in February, 2000. The WDO is planning to distribute funds to defray the year 2000 costs of recycling RBAC containers in November, 2000. The survey of 1999 glass tonnage on which the distribution will be based was completed in July.

The MOU specified that the RBAC funds be distributed among municipalities on the basis of a set of criteria and a specified application form and formula described in the appendices of the document. The WDO has followed this direction in distributing the 1999 and 2000 disbursements.

Looking forward to disbursements to be made in future years, beginning with 2001, the WDO has reviewed the existing criteria, formula and data submission process and recommends the changes summarized in Table 3.1

Table 3.1

Recommended Changes to RBAC Funding Program

1999 RBAC Program Issue Identified.	1999/2000 RBAC Action Taken	Recommended Change to 2001 RBAC
Industrial, Commercial and Institutional (IC&I) -glass collected from private establishments often included in residential tonnes reported. Formula pays on all tonnes reported.	-The WDO modified the **2000 RBAC survey** specifically requesting that municipality's breakout IC&I glass collected in 1999. WDO continued to pay on all tonnes reported.	-The **2001 RBAC Program** should distribute funds on the basis of residential glass tonnes reported. IC&I tonnes reported should not be funded.
Data Reporting and performance 1. Accuracy of data 2. Timely reporting 3. Survey format	1. Verification (using kg/hh/yr test) 2. 2000 RBAC deadline communicated to municipalities 3. Identified survey format changes necessary for 2001 RBAC	1. Options to verify Data –full system audit –random system audit –self-reporting with certificate 2. Tighten timelines for reporting 3. Promote standardized municipal record keeping.
Market Issues The formula described in the MOU requires that the WDO disburse funds on the basis of tonnes collected even if those tonnes are disposed of for economic reasons.	The WDO followed the MOU and paid municipalities based on glass collected for the purpose of recycling.	The 2001 RBAC program should pay on glass actually marketed for the purpose of the manufacture of new glass containers or other beneficial uses.
Program Issues 1. Wet/Dry Programs have higher than average glass residue and difficulty in isolating streams. 2. Sort-line residue.	1. Glass tonnage for wet-dry estimated based on kg/hh/yr recovery of similar program. 2. Identified survey format changes necessary for **2001 RBAC.**	1. Use actual tonnes based on the market issues above recommendation. 2. Promote standardized municipal record keeping.

3.2.3 Recommendations Related to Organic Waste Diversion

Part IV of the MOU states the role of the WDO with respect to organic waste diversion to be:

> "To expend up to $2 million towards the advancement of organic waste diversion, in particular:
>
> - *$50,000 in support of educational programs encouraging organic waste diversion, including support for International Composting Awareness Week; and*
> - *up to $1,950,000 for the development and implementation of a program to assist municipalities with 50% of the cost of developing and establishing organic waste diversion systems, such as centralized composting facilities and organic digestion facilities. Eligible capital costs shall include planning, design, engineering and construction and equipment costs for such facilities."*

The Organics Task Group of the WDO's Programs Committee developed a strategy to divert an additional 700,000 to 1,000,000 tonnes of organic waste from residential sources, in order to reach the 50% goal stated in the MOU. The task group also provided input to the Funding and Regulations Committee on the funding options and regulatory requirements needed to support these programs.

The plan developed by the task group to divert significant amounts of residential organic waste is presented in Appendix 4 of this document, along with a summary of discussions regarding a sustainable funding formula, and regulatory options which would be required to meet this goal.

The task group concluded that to reach a 50% diversion target, the following systems would need to be implemented:

- a comprehensive curbside[1] residential organic waste diversion program[2] to service all urban single-family households in Ontario[3], and
- processing the waste from about half of the multi-family households in the province through mixed waste processing plants.

The task group does not consider a five-year time frame sufficient to achieve this level of organic diversion for a number of reasons including the timing of existing waste management contracts, the time required for siting facilities, approval and construction of new processing facilities, the lack of experience with this type of technology in this market, etc. This strategy would also need to be underpinned by new regulatory and financial support mechanisms.

A scenario that diverts about 845,000 tonnes of organics per year (compared to current levels of 385,000 tonnes) is considered aggressive, but achievable within the five-year timeframe, so long as the appropriate legislative and financial supports (outlined in Section 6.2) are put in place.

The task group identified numerous areas of research that are still required to refine the preliminary estimates presented in the five-year plan, and to address issues which could not be fully assessed in the time available to the WDO. Some of the key questions which will require ongoing research, and should form the workplan of any future WDO program will include the following points.

Processing Infrastructure Development. There is not sufficient processing capacity in place in the Province of Ontario at this time to process the amount of organic waste that would be recovered through the various strategies considered. One of the challenges to any strategy will be to develop the processing infrastructure (both aerobic composting and anaerobic digestion) through construction of appropriate processing capacity throughout the province.

Technical Barriers To Compost Processing. A number of technical barriers to enhanced organics diversion, including issues such as the removal of plastic from finished compost, and the sourcing of effective bag breaking equipment to remove plastic from incoming organics streams need to be resolved to improve the quality of finished compost and therefore secure market outlets and increase revenues.

Collection Challenges. Cost effective and efficient collection of residential organics is one of the keys to the successful implementation of programs throughout the province. Each community needs to identify the system that meets its own needs, while learning from the experience gained in other communities. The

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[1] Curbside collection is the approach that has demonstrated the high recovery levels per household required to recover the tonnage necessary to reach the 50% target.

[2] to include household food waste, as well as leaf and yard waste

[3] in communities of 5,000 population or greater

WDO should continue to support pilot collection programs as the first step in comprehensive system implementation. Ongoing research should continue to identify cost efficient and publicly acceptable ways of collecting residential organic materials for diversion.

***Behavioural Change*.** From the public perspective, successful, sustained diversion of organics is a more complex task than diversion of dry recyclables. The material involved is wet, and can become odorous if not handled properly. Many communities have found significant resistance to the behaviour change required to source separate organics, and properly set them out at the curb. Ongoing research is necessary to identify the mechanisms needed to get people to change their behaviour and participate fully in the organics collection system, and to isolate actions that can be taken at the system-design stage to facilitate the change in behaviour required.

***Policies Required to Enhance Diversion of Organics*.** The WDO has concluded that a number of policies are required to ensure participation in the organics system to the level needed to achieve significant diversion levels. The task group considered policies such as landfill bans, bag limits, user pay and regulated mandatory service levels in preparation of this report. Ongoing research is required to examine the impacts of each of these policies on the amount of organics diverted.

***Multi-Family Organics*.** The WDO recognizes the difficulty of source-separating organic materials from multi-family waste, particularly in older buildings where space is not available and the waste management system is not designed to handle source separated streams. For this reason, the plan has been developed assuming that mixed waste processing is the only viable approach to diverting organic waste from multi-family buildings. Cost estimates carried out to develop the five-year plan indicate that this is a very high cost approach to diverting organic waste. The WDO has funded research to test source separation of multi-family waste and also to assess the technical and economic viability of mixed waste processing of multi-family waste to recover organics. However, a number of questions remain unanswered at this time. Significant additional research is required to identify ways to address organic waste from multi-family households.

***Backyard Composting*.** Ongoing research is required to identify the appropriate role of backyard composting in a comprehensive organics diversion strategy, including reasonable estimates of the actual costs of running backyard composting programs, the diversion results which realistically can be achieved by backyard composting in the long term, appropriate supports required to sustain backyard composting programs in the long term (levels of promotion and education, and technical support, etc.), and the impacts of various policies (bag limits, user fees, etc.) on the costs of backyard composting and on the levels of diversion achieved.

***Compost Markets*.** If a comprehensive organics diversion strategy is rolled out in the Province of Ontario, significant additional amounts of finished compost will be available in a competitive marketplace. It is essential to secure adequate markets for this material to sustain the composting industry and therefore the long-term financial viability of any organics strategy. Issues which will need to be addressed on an ongoing basis will include market development strategies through approaches such as government procurement practices, research into alternative uses and markets for finished compost, development of compost product quality standards, etc.

***Residential Organics System Costs*.** The cost estimates developed in the five-year plan presented in Appendix 4 are based on very preliminary estimates obtained from a number of sources. Significant additional research is required to refine these estimates by collecting more comprehensive data on existing and planned organics programs, and identifying the best available cost projections for future organics programs.

Net Environmental Impacts of Organic Waste Diversion. An integrated approach to identifying the optimal waste management system, community-by-community, is required to make the best decisions on how organic and other elements of the waste stream are managed in Ontario. This should form one of the ongoing tasks of the WDO.

3.2.4 Recommendations Related to HSW Management

Part IV (C) of the MOU states that:

> *" The Corporation shall spend up to $1,000,000 for the development and implementation of a program to support the establishment of from five to ten new permanent or satellite municipal Special Household Waste depots. The Corporation shall establish priorities where such facilities are most needed. Funding shall be based on funding 50% of capital costs and 50% of operating costs for a one year period, not including funding for the processing of the waste."*

Part IV (D) states:

> *"In addition to the program described in Part IV (C), appropriate design of a special household waste management program, in which residents may take special household waste to an appropriate depot where the products would be accepted into a program funded by the retailer or manufacturer or as otherwise developed/funded by industry."*

The Household Special Waste (HSW) Task Group was charged with:

- evaluating the need for and supporting implementation of new HSW depots;
- developing a long-term (five-year) plan for managing HSW;
- evaluating the need for a separate industry developed/funded program; and
- developing recommendations for sharing costs related to these programs.

From the work of the HSW Task Group, the WDO makes the following recommendations:

- There is a need for enhanced coverage of HSW depots, at least on an interim basis.

The HSW Interim Five-Year Plan (Appendix 4) includes maps of current HSW collection sites in the province, which illustrate that significant geographic areas (though with relatively small population base) do not have ready access to a HSW depot or service. Furthermore, it is not yet clear that the depots established in existing locations are adequate to meet the needs of the majority of the population in these areas. While it is projected that the proposed WDO program with greater industry efforts in product reformulation and consumers' proper usage and disposal of some materials now recovered at HSW depots will reduce the need for collection in future, the WDO should continue to support further development of the province-wide system. The level of service and access to these programs needs to be determined to project the number of new HSW programs and depots that would be required.

- WDO support should focus on the establishment of HSW services feeding into larger, permanent regional facilities, already established in major urban centres.

These services may range from special event days to more permanent satellite collection sites feeding into regional HSW collection centres. This will require the WDO to assess the regional needs and cost implications of the existing system in 'year one' with identification of the most cost effective systems for implementation.

- While the WDO has accepted the recommendation of the task group that the costs of municipal HSW recovery programs should be shared during the first full year of such a program, the participants need to reach agreement on incentives specific to HSW management and these should be incorporated into the financial support program.

Some key examples that have been considered by the task group include:

- modifying the current approach of sharing reported municipal costs to base future sharing on the basis of jointly approved efficiency standards;
- setting appropriate standards for distance and access to HSW facilities;
- establishing incentives for increased diversion on non-hazardous materials from HSW facilities to reduce total costs to all;
- establishing incentives for stabilization and recycling (where appropriate) of recovered materials;
- creating programs to measure the effectiveness of efforts to promote re-formulation, proper use at home, and re-use where appropriate; and
- investigating options for recovering energy from recovered materials.

- Continuously review the products that are included in HSW management programs.

The list of products included in 'year one' of the proposed HSW Interim Five-Year Plan represents an interim list jointly agreed to by the industry and municipal representatives on the HSW Task Group. All parties agree that this list requires continuous review with the objective of establishing guidelines based on clear, jointly accepted scientific criteria. Such criteria are expected to be developed over the next several years by the Canadian Standards Association (CSA). Upon completion and approval of this work, it is proposed that the WDO adopt common criteria and product lists and also support their adoption in other provinces.

- Develop model request for proposal, tender and contractual documents specific to HSW management.

Greater standardization of these tools would improve the accuracy of HSW reporting and program bench marking, which will in turn help to identify the most cost effective approaches to managing HSW.

- Develop standardized accounting and data collection systems.

In concert with the continuous review process, the WDO can extend its work on standardized accounting for diversion of other waste materials to incorporate the specific needs of HSW programs.

- Undertake a cost/benefit analysis of municipal HSW programs.

It is recommended that the WDO sponsor a cost/benefit analysis, incorporating environmental protection and cost considerations, to be completed within the five-year period agreed to for the proposed WDO HSW funding program.

- Monitor HSW disposal costs with increasing waste management industry consolidation.

Both industry and municipal representatives have expressed concern that continuing consolidation within the waste management industry may lead to reduced competition and higher prices for HSW disposal services in future years. It is recommended that the WDO monitor and evaluate these costs, compared to those incurred in other jurisdictions.

3.2.5 Recommendations Related to Communications

The Memorandum of Understanding governing the WDO's creation and mandate calls for communications activities, in particular:

Part III # 18.

> *"The Corporation shall communicate information respecting its programs to all Ontario municipalities at least quarterly."*

If the WDO evolves from a one-year voluntary arrangement into a permanent organization with an initial five-year mandate, communications functions will remain a core activity for both municipal program communication and education needs and the province-wide communication needs of the WDO itself. Key among these activities will be the developmental and administrative work required to support, in an effective and efficient manner, the advertising space expected to be contributed by the Ontario daily newspaper members of the Canadian Newspaper Association (CNA) and the members of the Ontario Community Newspaper Association (OCNA).

All of the activities managed by communications should be governed by a strategic communication plan that would be developed annually, corresponding with the establishment of the WDO's overall and program goals.

Administering Advertising Space Contribution. Ensuring the full utilization of the advertising space expected to be made available by Ontario's daily and weekly newspapers will remain a central function of the WDO's communications responsibilities. Since this advertising space will likely be available to hundreds of municipalities throughout Ontario, a coordinated approach to its use and monitoring is necessary. Only by coordinating the resource through a central location will the WDO and the CNA/OCNA be able to monitor its use and ensure that the advertising placed focuses on WDO and CNA/OCNA approved messages.

Program Communication & Education. It can be anticipated that specific Communication and Education (C&E) support for the WDO's programs activities will be a major function of the organization. This will entail broad-brush C&E activities such as developing a store of promotional materials that municipalities can access to enhance their own resources, as well as direct C&E support in the way of technical assistance. The target audience in this instance would be the citizens of Ontario, either collectively or in individual communities, depending on the type of project.

Technical assistance would comprise both public opinion and attitude research and C&E strategic planning and implementation experience and expertise.

The WDO recommends that public opinion and attitude research should become a WDO core function on two levels. First, research on public attitudes and behaviours pertaining to various waste management issues and activities should be carried out periodically to establish benchmark data and to track changes that result from program activities. Second, it should be employed on a project-by-project basis, as needed, whenever significant pilot and demonstration projects are implemented. This ongoing flow of information will provide an essential monitoring of changes in the public pulse on waste issues.

On a similar level, it is recommended that the WDO should continue to provide, where appropriate, technical C&E assistance to municipalities on the strategic planning and implementation of C&E activities directed at changing and maintaining new public behaviours.

It can be expected that these activities will employ both mass media and community-based social marketing tools.

It is recommended that, under a strategic communication plan, best practices and communication tools developed by one municipality (i.e. advertisements paid for or supplemented by WDO dollars) would be made available broadly to other municipalities throughout Ontario.

In this context, the WDO would encourage and assist municipalities with the development of annual and project strategic communication plans, resulting in the transfer of these skills to municipalities without benefit of professional communication expertise.

The transfer of knowledge, skills and tools, along with the WDO's umbrella C&E activities targeted at developing awareness and behavioural change among the citizens of Ontario should help the WDO achieve target waste diversion goals.

WDO Communications: WDO communications would encompass both province-wide information and waste diversion promotion activities as well as communication support for WDO-funded municipal projects. Some of the information dissemination activities would include preparing and distributing key documents describing progress and ideas, posting information to the WDO web site, producing targeted information updates that would be distributed through email and fax, news releases, speaking engagements and interviews/articles for trade media.

3.3 Governance of the WDO

Given the level of effort required to implement the programs and activities of the WDO over the last eight months, the Board of Directors has not had the opportunity to address this critical issue. Therefore, the board has directed the WDO Secretariat to prepare a report, following consultation with key stakeholders, on the proposed future governance structure of the WDO, for review by the WDO Board at its meeting on October 11, 2000. This will also provide an opportunity for the board to take into consideration comments received in response to this report.

The key issues to be addressed within this report are to include:

1. the future roles and responsibilities of the WDO, including proposed procedures for reviewing and approving proposed industry stewardship plans and programs;
2. a review of anticipated WDO administrative and technical resource requirements and recommendations on how these should be provided;
3. a preliminary business plan for 2001 (subject to the response received from the Minister of the Environment to the recommendations made by the WDO);
4. details of proposed methodologies for calculating WDO payments to municipalities for approved WDO programs;

5. details of proposed methodologies for calculating industry payments to support the WDO's program activities;

6. recommendations on industry sector fees for 2001 and preliminary forecasts of the fee rates for the initial five-year period;

7. the recommended composition of the Board of Directors of the WDO and appointment procedures;

8. decision-making procedures for the board and the administrative arm of the WDO;

9. procedures for other key stakeholders to have input to the activities of the WDO; and

10. reporting requirements of the WDO.

Following the WDO Board's review and approval, this report will be forwarded to the Minister of the Environment.

Part IV

Recommendations with Respect To Waste Diversion Objectives

4.0 WDO Waste Diversion Objectives

The parties to the MOU that provided the basis for the creation of the WDO "confirmed their continued commitment to reduction, reuse and recycling toward Ontario's goal of 50% waste diversion from disposal."

The letter the Minister of the Environment sent to the WDO in response to the Interim Report reiterated that "the province remains committed to achieving 50 percent reduction in waste disposed per capita relative to 1987."

In this section of the report, the WDO addresses the central issue of how much waste is expected to be diverted through those activities directly supported by the WDO.

4.1 Measuring Waste Diversion

On March 10, 1989, Jim Bradley, then Ontario Minister of the Environment, established a goal of 50% reduction from disposal by the year 2000. At that time, the precise details of how this goal would be measured were not specified. The methodology for measuring progress was first described in more detail in "Measuring Progress Towards Ontario's Waste Reduction Targets" released in June, 1992. In this document, the reduction calculation apparently took into consideration the contribution made through the sum of reduction, reuse, recycling and composting within both the residential and the industrial, commercial and institutional (IC&I) sectors, against the quantities of these wastes generated on a per capita basis in Ontario in 1987.

It is important to emphasize that the waste reduction goal applies:

(a) to the province as a whole and not to each individual municipality, and
(b) to the total of residential and IC&I wastes.

The WDO's current focus is limited to the residential waste stream.

In 1996, the ministry determined that the total quantity of waste reduction from disposal had reached 32% relative to the 1987 baseline. By 1997, this overall level of reduction from disposal had risen to 35%, and by 1998 to 39% (see Table 4.1).

Table 4.1

Ontario Provincial Measurement 1996 – 1998 Trend
Waste Reduction from Disposal (Historical Method)

	1996	1997	1998
Residential % Reduction in Tonnes Disposed	11.5%	25%	31%
IC&I % Reduction in Tonnes Disposed	48%	42%	42%
All Sectors % Reduction in Tonnes Disposed	32%	35%	39%

The reduction from disposal figures for 1996 and 1997 are as reported by the Ontario Ministry of the Environment. The 1996 data was in reference to the April 1998 Recycling Council of Ontario Roles and Responsibilities Report. The WDO estimated the figures for 1998 based on actual 1998 diversion reported by municipalities through the Municipal 3Rs in Ontario Fact Sheet and with WDO estimates for 1998 waste disposal. The WDO also assumed no change to the 1997 IC&I reduction rate for 1998.

However, as can be seen in this table prepared by the WDO, this overall reduction (or "historical") calculation represents a weighted average of reduction in wastes from both the residential and IC&I sectors. Generally speaking, the IC&I sector has been more successful in achieving higher rates of reduction from disposal than the residential sector given that:

- the IC&I waste profile is more homogeneous, facilitating materials recovery;
- management of IC&I wastes is charged on a user pay basis providing an economic incentive to reduce disposal costs; and
- there are fewer individual IC&I generators than residential generators, each with higher concentrations of waste, making recovery more cost effective.

The higher reduction rates in the amount of waste going to disposal achieved in the IC&I sector (48% in 1996), when combined with the residential diversion rates, have tended to 'pull up' the much lower performance of the residential sector. The net result is that the apparent provincial average is disproportionately influenced by the reduction contribution made by the IC&I sector.

The ministry also measures the reduction from disposal in the residential sector on a province-wide basis. The reduction baseline established for 1987 for the province as a whole was 392 kg/per capita/per year. Individual municipalities, however, may use their own local data sources in calculating the progress they have made against their own locally estimated 1987 baseline. This differential, combined with the generally weak data that underpinned the provincial 1987 estimates, can result in significantly different estimates of residential reduction from disposal in any given year. Accurate measurement of reduction from disposal is further complicated by such factors as:

- changes in the municipal waste management services provided (i.e. whether servicing high-rise buildings is contracted out);
- amalgamations of municipal governments;
- changes in economic conditions locally and province-wide;
- changes in the housing mix; and
- discrepancies in the reporting periods or waste data used.

Given these difficulties in calculating local reduction from disposal against an historic baseline, many municipalities also (or exclusively) use a measurement system that evaluates the amount of waste diverted through recycling, composting and HSW against the total waste disposed of in the current year. Table 4.2 compares the key features of the historic method (reduction from disposal relative to fixed baseline) and the current flow (current diversion relative to total current generation).

The two methods are not at odds but can work together to give a multi-dimensional perspective on progress towards a 50% goal. For example, a municipality can calculate its current flow diversion for a particular year and use the disposal figure from this calculation as an input for the historic method calculation.

Table 4.2

Diversion Rate Methodology Comparisons		
Questions	Current Flow	Historical
Captures reduction/backyard composting/user fee impacts?	Estimates	YES
Measures capture efficiency annually?	YES	YES
Independent of population/ growth?	YES	YES
Factors in packaging light-weighting influence on diversion?	NO	YES
Requires strong historical data?	NO	YES
Allows 'apples to apples' comparison of municipal system performance	YES	NO
Impact of economic expansion/ contraction	Minimal	Large
Formula (x 100)	1999 waste diverted 1999 waste diverted + disposed	1987 per capita disposal 1999 per capita disposal 1987 per capita disposal

Generally speaking, the diversion rate for the historic method will be higher than that for the current method given the same raw data. This is because the historic method captures waste generation trends (such as packaging light weighting and less in-home food preparation) that are beyond the municipality's direct influence and measurement. These factors, however, are included in the calculation of the Current Flow Method. For example, in 1998, using the same raw data, Ontario-wide reduction rates can be calculated as follows:

Table 4.3

Calculation Methods

	Residential 'Current Flow' Diversion	Residential Reduction from Disposal 'Historic Method'	All Sectors Reduction from Disposal 'Historic Method'
1999 Ontario Wide	27%	31%	39%

All of the data collected by the WDO and all diversion calculations and projection scenarios have been based on the Current Flow Methodology. As noted above, the outputs of these calculations can in turn be used by a municipality or by the province to estimate progress towards the historic diversion target.

It is recommended that the WDO continue to measure annual diversion progress using the current method as the basis for reporting on its activities. As an aid to the calculation of current flow diversion, several municipalities in Ontario (Guelph, Peel, Ottawa-Carleton) as well as major centers across Canada (Halifax, Edmonton, Winnipeg) are testing a standardized methodology referred to as the GAP (Generally Accepted Principals for calculating municipal waste flow) methodology. The standardized waste system diagram and conventions utilized in this methodology were developed over the last year by a team of more than 20 waste management practitioners from across Canada. Subject to final revisions by this team, the GAP current flow methodology should be adopted as the standard for all residential tonnage data collected by the WDO. It is also recommended that the data collection activities of the Municipal 3Rs in Ontario Fact Sheet be expanded to include the collection of disposal data consistent with the GAP methodology.

4.2 What Will it Take to Get to 50% Diversion?

Table 4.4 "Getting to 50% Waste Diversion," shows the current status of residential waste diversion in Ontario, based on data collected via the joint Municipal 3Rs in Ontario Fact Sheet, which includes the RBAC survey completed in July 2000. It shows that using the current flow method, recycling, composting and special waste programs diverted 27%, or 1.2 million tonnes of residential waste generated in Ontario in 1999. It should be noted that the overall diversion rate fell by 2% relative to figures reported in the WDO Interim Report for 1998 despite a 2% increase in tonnes recycled through curbside programs. This is due to a decision to reduce backyard compost diversion estimates by more than 72,000 tonnes for the province as a result of further analysis completed by the Organics Task Group.

Having established the current baseline for 1999 at 27%, each task group looked ahead to 2005 to determine the levels of diversion that would be necessary to achieve the 50% residential diversion target measured on a "current flow" basis.

After allowing for 1% annual population growth, and 2% annual new housing starts, the WDO determined that about 1.1 million *new* tonnes of diversion would be required to achieve a 50% target. The question then became, where could the WDO best find the new tonnes of diversion that would be required to close the gap between existing diversion levels and the target.

Looking first at recycling and applying diversion estimates based on the best performing programs in the province, it quickly became clear that materials recycling alone could not achieve the 50% goal. In fact, even if all households recycled 100% of the recyclable materials they generated, the 50% goal would not be met.

Table 4.4

Getting to 50% Waste Diversion

	Current Flow Diversion 1999			50% Diversion 2005		
Population	11,500.00				12,340,000	
Households	4,387,000				4,832,000	
Waste Generation	Tonnes	Kg/cap	Kg/hh/yr	Tonnes	Kg/cap	Kg/hh/yr
Total Residential	4,340,000	377.4	990	4,652,000	377.0	962
Source Reduction & At- Home Organic Diversion	112,000	9.8		190,000	15.4	
Curbside Recycling	667,000	58.0		1,000,000	81.0	
Centralized Organic Composting	281,000	24.4		975,000	79.0	
HSW	6,000	0.5		10,000	0.8	
Bulky Recyclables	100,000	8.7		151,000	12.3	
Total Diverted	1,166,000	101.4	27%	2,326,000	188.5	50%
Total Disposed	3,174,000	276.0	73%	2,326,000	188.5	50%

Current flow diversion calculates the quantity of material diverted from that generated in a given year. The residential reduction from disposal against the 1987 base year rate (historical) would be higher than the current flow. For example, in 1987, the current rate is 27% and the historical rate is 29.5%.

By applying aggressive estimates for future recycling capture rates, doubling of household special waste diversion, and showing aggressive reduction resulting from increased user fees and bag limits, there remained a shortfall of almost 700,000 tonnes relative to the 1.1 million tonnes necessary to achieve 50% diversion. By default, this fell to the organics stream.

Considerable debate continues as to whether the 50% target is the "right" number. It could be argued that 49% or 51% are just as meaningful. Several comments on the WDO Interim Report also pointed out that diversion and system cost are not the only measures of success and that the net environmental impact of future programs should be an additional dimension for consideration. Several lifecycle tools have been developed, including one in Canada that provide quantitative measurement of key environmental parameters of municipal waste management systems, and can predict the potential impact of proposed future systems. The challenge will be to determine the optimal level of diversion from the perspective of disposal reduction, cost, and social and environmental impacts, both locally and collectively, as we look forward.

The WDO's analysis to date suggests that attaining 50% diversion in the timeframe described would require fundamental technical, social and policy shifts as well as a financial commitment akin to a 'step change' in behaviour to move to a next generation diversion system. The elements of such a change would have to include consideration of:

- modification of the Ontario 3Rs Regulations requiring municipalities to divert an expanded organics stream;
- regionally-appropriate disposal bans on organic material;
- expansion of 'bag limit' and 'user fee' programs to all municipalities;
- higher landfill tipping fees to recognize the true market value of disposal;

- extensive public education and ultimately public acceptance of a doubling of current diversion efforts including the 'yuk' factor associated with kitchen organic diversion (this refers to the rapid decomposition of organic materials);
- fast tracking site approvals and permits for the design and construction of the new facilities required to process the 700,000 new tonnes of organic material that would enter the system;
- immediate identification of, and agreement to an equitable cost-sharing formula for the organics stream among industry, municipalities and the province to provide an economic base for the immediate capital expansion program that would be necessary. Establishing a 50% system in the suggested five-year timeframe also would require the cancellation or renegotiation of a large number of municipal contracts with private haulers, likely resulting in additional cost;
- redesign of products and packaging to reduce waste and to facilitate diversion; and
- changing production processes to increase utilization of recovered materials.

Given these challenges and, in particular, the lack of an equitable cost-sharing agreement for the organic sector, the barriers to achieving 50% current diversion in the timeframe given are immense. Section 5 examines the cost of getting to 50% diversion, as well as alternate scenarios including a recommended blended middle ground option.

4.3 Alternative Diversion Scenarios

In 1999, nearly 4.4 million households in Ontario set out approximately 667,000 tonnes of residential recyclables for collection. The majority of this material—about 90%— came from single-family households, while the remaining 10% was recovered from multi-family dwellings. The household recovery rate (a blend of single and multi-family units) in 1999 averaged 165 kilograms per household per year (kg/hh/yr). In addition, backyard composting, bulky recycling and centralized composting together diverted nearly an additional 500,000 tonnes. In aggregate, these diversion activities represent a 1999 baseline residential diversion rate of 27% for the province.

Using the 1999 base rate as a starting point, the WDO originally developed a scenario that calculated the extra diversion required to get to 50% current flow diversion in a five-year period. As a result of the challenges detailed in Section 4.2, the WDO developed two additional scenarios to estimate a range of possible diversion options for residential waste management systems over the next five years.

50% Diversion

As stated in Section 4.2, the 50% Diversion option looks at what it would take to get to 50% residential current flow diversion, in which annual residential diversion would nearly double over 1999 rates. To achieve the target, Ontario municipalities would have to adopt a wide range of new incentives (such as bag limits, reward programs, user pay programs, changes to the 3Rs Regulations and landfill bans), as well as significant changes to the waste management infrastructure—particularly for multi-family units and organic diversion systems—underpinning the high household recovery rates forecast in this scenario.

Middle Ground

This second option assumes aggressive growth in annual recycling tonnage resulting in a projected diversion rate in 2005 of about 40%. An intensive municipal approach to diversion resulting in increased average recovery rates for recycling and full service organic collection for all single family homes in southern Ontario and all Toronto multi-family homes is a key assumption of this option.

Current Momentum

The third option projects year 2005 diversion at about 30% based on current momentum. A limited number of communities would implement aggressive recycling and organic mechanisms while one-half of the multi-family units in the Greater Toronto Area would achieve high recovery rates through mixed waste processing systems.

The projected five-year diversion scenarios are summarized in Table 4.5

Table 4.5
Projected Five-Year Diversion Options

Scenario	Key Assumptions	Projected Annual Cost in 2005	Policy Implications
Current Momentum	Recycling capture improves to 60% province-wide. Full organic programs for 700k homes @ 60% capture and 25% of Toronto apartments.	Recycling 787,000 Organic 503,000 HSW 7,000 Total = 1,297,000 = 31% diversion	Maintain existing 3Rs Regulation. Continue voluntary industry support for recycling.
Middle Ground	Recycling capture improves to 70% in key urban areas, 60% rest of province. Full organic program for all southern Ontario single family @ 60% capture and 75% of all Toronto apartments.	Recycling 880,000 Organic 845,000 HSW 10,000 Total = 1,735,000 = 41% diversion	User fees/bag limits on waste in key communities. WDO technical & financial support program required. Expand 3Rs Regulation to include organics.
50% Diversion of Municipal Waste Generated	Recycling capture improves to 80% province-wide. Full organic program for all southern Ontario, single-family homes @ 85% capture and half of all multi-family households in the province.	Recycling 1,000,000 Organic 1,168,000 HSW 10,000 Total = 2,178,000 =50% diversion	WDO technical & financial support program required. User fees/bag limits on waste in all municipalities to drive diversion. Banning of organics material at landfill. Higher landfill tipping fees for residential waste.

Part V

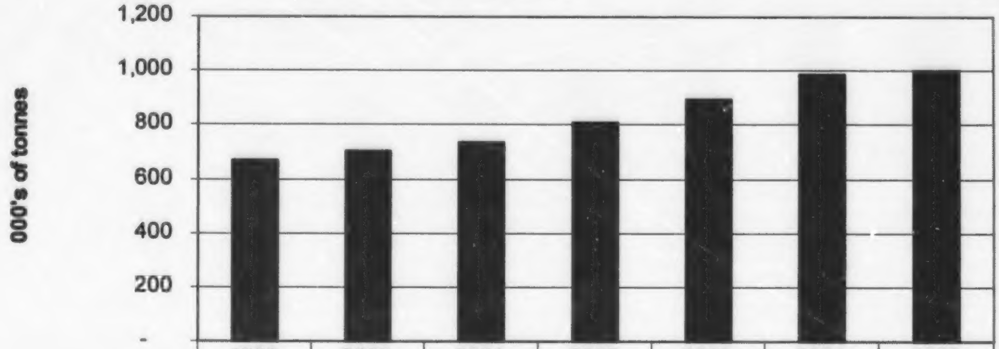
Projected Costs Of Achieving These Targets

5.0 Projected Costs of Achieving These Objectives

5.1 Projected Costs of Achieving the Recycling Objectives

Assuming a 50% diversion target for the year 2005, the contribution made by residential recyclables was estimated to be 1.0 million tonnes, as shown in Figure 5.1. The achievement of this target would represent a 50% increase, or 333,000 new tonnes of recyclables, compared to the recovery of 667,000 tonnes in 1999.

Figure 5.1
Projected Diversion of Recyclables
(000's of tonnes)



	1999	2000	2001	2002	2003	2004	2005
Diversion of Recyclables	667	702	738	810	898	986	1,000

In order to reach the 1.0 million tonne target, significant increases in both the scope of existing residential services and average recovery rates would be required. The number of multi-family (MF) units served would need to increase 24% to 1.1 million, which is 90% of the projected year 2005 MF household stock. Given that private contractors service a significant percentage of MF dwellings, measures likely would need to be implemented to ensure the provision of recycling services to these households.

The number of single family (SF) households with access to recycling services is not expected to increase significantly, though average household recovery rates would need to rise sharply. Estimates indicate that a 50% increase in the current average SF household recovery rate (i.e. from 208 to 304 kg/hh/yr) would be required to meet the diversion target. In addition, the average recovery rate for multi-family dwellings would need to increase from the existing level of 78 kg/hh/yr to as much as 167 kg/hh/yr. It was also assumed that higher recovery rates could be achieved with the implementation of mixed waste processing facilities to service Toronto's 450,000 MF households.

Two key sets of cost factors determine the estimated cost of recycling: the gross cost of the service (i.e. including collection and processing) and the revenues from the sale of materials (commonly called the "basket of goods" in curbside programs). One of the important accomplishments through the WDO process has been to undertake the necessary research to determine more accurately the current cost of recycling in the province.

Future costs of recycling will depend on the gross cost of collection and processing as well as the value of the "basket of goods" revenue. Since 1997, the basket of goods revenue has remained constant and shows a slight upward trend. Combined with stable gross collection and processing costs, the net cost of recycling is expected to decline slowly over the next five years.

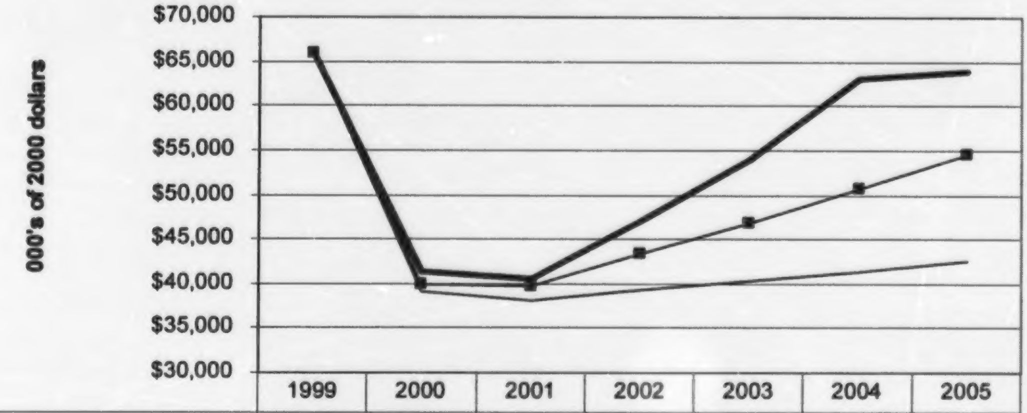
With recovery projected at 1.0 million tonnes (i.e. the 50% Diversion scenario), expenditures in 2005 are estimated to rise to $64.0 million. For the Current Momentum scenario, the net cost of recycling in 2005 is projected to be $42.5 million (i.e. due to slightly higher revenue streams and projected lower collection processing costs). The Middle Ground scenario represents a mid-cost range, decreasing from $66 million in 1999 to $54.6 million in 2005.

Currently, the province-wide average cost of collecting, transferring and disposing of curbside garbage is estimated to be between $80 and $100/tonne. The cost for multi-family dwellings is in the range of $60 to $80/tonne. Assuming a 2% inflation per annum, the Year 2005 cost range of garbage disposal is estimated to be $110/tonne and $90/tonne for curbside and multi-family respectively.

Based on these figures and the assumptions noted earlier, the Year 2005 cost of recycling curbside and multi-family recyclables is expected to be less than the cost of treating this residential material as garbage.

The costs of achieving the alternative diversion scenarios identified in Section 4.3 are presented in Figure 5.2 below.

Figure 5.2
Projected Recycling Costs for Three Scenarios:1999-2005



	1999	2000	2001	2002	2003	2004	2005
━ 50% Diversion	$66,000	$41,400	$40,500	$47,000	$53,900	$63,100	$64,000
─■─ Middle Ground	$66,000	$40,000	$39,800	$43,300	$46,900	$50,700	$54,600
── Current Momentum	$66,000	$39,200	$38,200	$39,300	$40,300	$41,400	$42,500

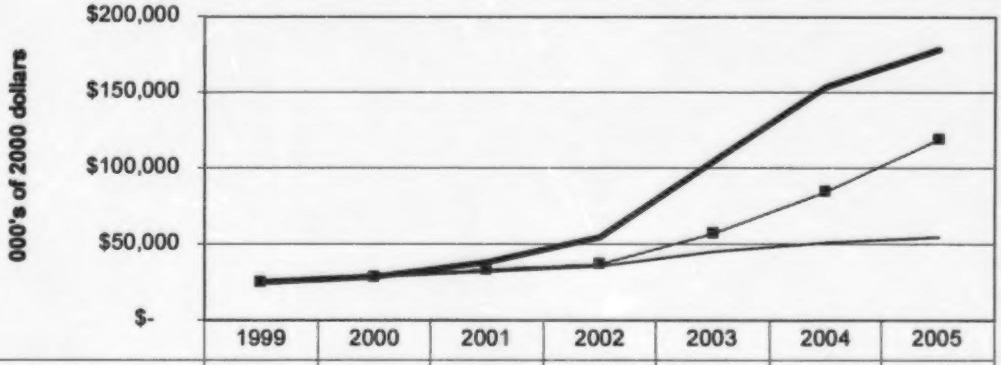
5.2 Projected Costs of Achieving the Organics Objectives

Ontario households diverted an estimated 393,000 tonnes of organic waste in 1999. Values for the year 2000 may be somewhat higher, given that wet summer weather likely has produced significantly more leaf and yard waste. This projected total includes 281,000 tonnes diverted through leaf and yard waste programs (reported in the recent datacall carried out by the WDO, in partnership with a number of organizations including CSR: Corporations Supporting Recycling, the Ministry of the Environment and the Recycling Council of Ontario), and an estimated 112,000 tonnes diverted through backyard composters. The cost of the existing organics management system is estimated at $25 million/year, based on a survey of Ontario municipalities carried out by WDO researchers in June 2000.

The Current Momentum scenario projects an increase in residential organic waste collection in Ontario of 20,000 tonnes/year, by adding 630,000 single family households to comprehensive curbside organics programs over a five-year period. This would increase the overall costs of the existing organics system to an estimated $55 million/year, from the current level of $25 million per year, or an increment of $30 million per year over current levels. The other scenarios discussed are compared to this Current Momentum scenario.

Ontario households would need to divert an estimated 1.17 million tonnes of organic waste to achieve a 50% overall diversion target. This is about 780,000 tonnes/year more than the current diversion levels. Recovery of an additional 780,000 tonnes/year would require all urban single-family households in Ontario (including urban households in northern Ontario, but excluding rural Ontario households), and half of the multi-family households in the province (primarily in the greater Toronto Area and one or two other large urban areas) to have comprehensive organics recovery systems. This would require the rollout of a comprehensive organics program to 2.5 million single-family households and 600,000 multi-family households in Ontario over the next five years.

Figure 5.3
Projected Organics Diversion Costs for Three Scenarios: 1999-2005



	1999	2000	2001	2002	2003	2004	2005
━ 50% Diversion	$25,000	$28,000	$38,000	$55,000	$105,000	$153,000	$179,000
─■─ Middle Ground	$25,000	$28,000	$33,000	$37,000	$57,000	$84,000	$119,000
── Current Momentum	$25,000	$28,000	$32,000	$36,000	$45,000	$51,000	$55,000

The effort and fundamental waste management system changes required to recover an additional 780,000 tonnes of organic waste (to reach a 50% target) is not considered to be a realistic goal within a five-year timeframe (to 2005) for a number of reasons. The timing of current contracts already in place in the province makes it very difficult to change existing systems within this timeframe. These changes likely cannot be implemented until current contracts expire and new contracts can be negotiated. The time required to site composting facilities designed to handle residential food waste and also to obtain a Certificate of Approval (particularly given the current approval system) is considered a second major barrier to rapid implementation of a new system to manage residential organics. Time is also a factor in properly structuring and awarding the new contracts required to address residential organics

The task group considered diversion of an additional 460,000 tonnes above existing levels as a more realistic, but still very aggressive goal within a five-year timeframe. This target would still require significant new activity within the next five years, including the rollout of a comprehensive curbside organics collection service to two million single-family households and to process mixed waste from 275,000 multi-family households in Ontario. Preliminary estimates indicate that the processing of large quantities of multi-family waste to recover the organic component is less cost efficient than focusing on single family homes. As a result, a strategy that does not address multi-family waste could also be considered. The results of some WDO research projects are required to firm up this conclusion.

The capital costs to achieve the 50% diversion goal for organics are estimated at $560 million, with ongoing annual operating costs of $179 million/year for the organics system (including amortized capital). Because large amounts of waste would be diverted away from the garbage stream, savings would be realized in this system. The net increase in costs to the overall waste management system (organics plus garbage) is estimated at $59 million/year more than the Current Momentum scenario, or $89 million/year more than the status quo.

The Middle Ground scenario, which involves aggressive growth, but is considered a more realistic goal within the next five years, has capital costs estimated at $350 million, and ongoing annual operating costs for the organics system estimated at $119 million/year (including amortized capital). Again, savings will occur in the garbage system as a result of moving 460,000 tonnes/year into the new organics system. An estimated $20 million of this total is related to the mixed waste processing of 175,000 tonnes of multi-family waste, to recover 73,000 tonnes of organic waste. This is an increment of $5 million more than handling the multi-family waste as garbage. An additional $90 million/year is related to collecting and processing residential organic waste from two million homes in a comprehensive three-stream system. The remaining $9 million is the estimated cost of diverting organic waste from the remaining households through leaf and yard waste collection and backyard composting, which is a very cost effective approach, but does not recover sufficient organic materials to reach high diversion goals and targets. The net increase in the costs of this scenario is estimated at $29 million/year more than the Current Momentum scenario, or $59 million/year more than the existing system.

Backyard composting will continue to have a role in both scenarios, with 600,000 to 1,000,000 households in the province continuing to depend on backyard composting and leaf and yard waste collection for organic waste diversion. There is a limit to the recovery backyard composting can achieve, however, as only about 30% of single family households have demonstrated a sustained interest in taking part in this activity.

5.3 Projected Costs of Achieving the HSW Objectives

Municipal HSW Program

The Memorandum of Understanding which has guided the work of the WDO through this start-up period, requires "the identification of options for a long-term sustainable funding formula prescribing appropriate levels of annual contribution and appropriate sources of contribution for long-term continuation of funding for,

(i) Up to 50 per cent of the net operating costs of municipal Blue Box programs and other municipal programs that recycle the same or similar materials, and

(ii) Future continuation of the programs set out in Part IV "C" of this MOU and for other programs with purposes similar to those described in this MOU"

Industry and municipal members of the task group achieved consensus on a HSW system to collect a broad list of HSW defined materials determined by scientific criteria and/or the agreement that a special collection need existed. The task group also discussed the addition of an expanded list of materials through the current HSW system provided that the materials met one or more of the criteria for inclusion and the affected industry sector provided funding.

Table 5.1

Ontario HSW System – Cost/Tonnage Estimates

	Total Tonnes Collected Ontario	GTA Urban Centres @ $920/tonne A	Large Urban Centres @ $1,600 tonne B	Other Municipal Centres @ $2,160 tonne C	Range of System Costs Low Range = A+C High Range = B+C
Estimated 1999 Recovery	6,100 tonnes (21% recovery)	$4 M	$7 M	$4 M	$8 to $11 M
10% Annual Growth Rate to 2005	9,800 tonnes (33% recovery)	$6 M	$11 M	$6 M	$13 to $17 M

Notes: M = millions

Key Assumptions:

1. HSW generation is 0.71% of total residential waste = 30,000 tonnes.
2. Generation rate assumed to be constant through 2005.
3. GTA municipalities account for 70% of total quantities recovered with the remaining 30% from other communities.
4. Capital costs not included.

The cost of municipal HSW management systems was first estimated by examining the quantity of HSW generated in 1998 and 1999 through waste composition analyses and data calls to municipalities. It was estimated that in 1999, HSW programs collected 6,100 to 6,300 tonnes of HSW materials at a cost of $8 million to $10 million. (Note, however, that the recent WDO HSW Cost Survey indicated that capital costs were not reported in six of the 50 municipalities reporting costs.)

Recovery projections for 2005 were made based on the assumption that the quantities of HSW materials recovered and the associated costs would increase at a rate of 10% per year (with no modifiers for efficiency gains and not including central costs related to communication and education programs and continuing work required on the definition of HSW materials to be collected). It is estimated that by 2005, the Ontario HSW System will collect around 9,800 tonnes of materials (an estimated 33% recovery rate of HSW generated) at a cost ranging from $13 million to $17 million per year. Table 5.1 illustrates the assumptions and cost scenarios used.

Industry Self-Managed HSW Programs

In addition to the program described in Part IV "C", paragraph 2 of the MOU, Part IV (d) refers to the appropriate design of special household waste management programs in which residents may take special household waste to an appropriate depot where products would be accepted into a program funded by the retailer or manufacturer or as otherwise developed/funded by industry.

The HSW Task Group considered this task to be redundant given industry willingness to share the costs of maintaining the established system of municipal HSW programs in Ontario. In addition, industry representatives took the view that such programs developed/funded solely by industry were not in keeping with the guiding principles established by the WDO.

The cost of establishing new industry controlled collection systems with the precautions and technology to meet fire codes and existing HSW depot standards was considered high and did not support an integrated approach to managing special household waste through existing municipal special waste systems.

WDO support for a municipally-managed HSW system does not, however, prevent specific industry sectors from initiating and funding their own separate HSW collection systems if this is their preference. The task group fully supported this as long as the performance criteria set for these programs remained the same for all industry stewardship organizations.

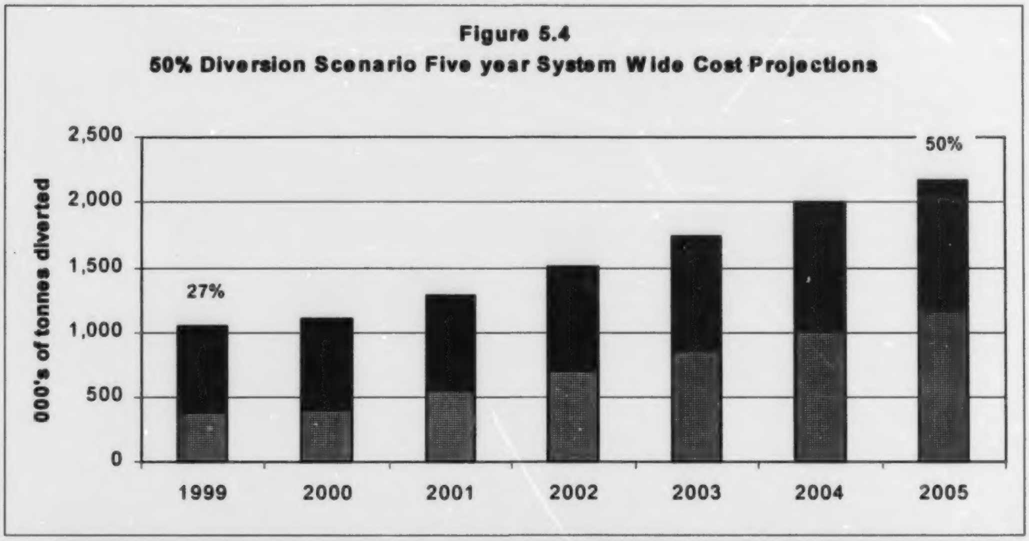
The task group did not estimate the potential recovery estimates or costs that might be associated with such programs. Examples of voluntary industry self-managed programs do exist, however, such as the Rechargeable Battery Recycling Corporation, which reports having recycled 26 tonnes of batteries Canada-wide. Other programs exist on a local basis, such as a paint-recycling program through participating retailers in the Region of Ottawa-Carleton and automotive oil recovery at some retailers and service centers.

5.4 Five-Year Projected System-Wide Diversion Estimates & Costs

In Sections 5.1 through 5.3, the WDO estimated the diversion costs for recycling and organics using a series of three common scenarios: Current Momentum, Middle Ground and 50% Diversion. Achieving the 50% overall diversion goal is dependent on each of the streams (primarily organics and recycling) contributing the quantities specified in their respective 50% diversion five-year plan scenarios. If either primary stream is unable to meet its stream specific target, and if the shortfall cannot be made up elsewhere, the overall goal cannot be achieved.

The combined diversion necessary to achieve 50% and the associated costs are shown in Figure 5.4, "50% Diversion Scenario Five-Year System-Wide Cost Projections." The projected annual net operating cost of this system is $260 million or approximately $112 per tonne.

Figure 5.4
50% Diversion Scenario Five year System Wide Cost Projections



System Cost $millions	1999	2000	2001	2002	2003	2004	2005
HSW	$10.0	$10.0	$11.0	$12.5	$14.0	$15.5	$17.0
Organics	$25.0	$27.8	$38.1	$54.7	$105.0	$152.7	$179.4
Recycling	$66.0	$41.4	$40.5	$47.0	$53.9	$63.1	$64.0
Total	$101.0	$79.2	$89.6	$114.2	$172.9	$231.3	$260.4

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

Currently, the cost of collecting, transferring and disposing of curbside garbage is estimated to be between $80 and $100/tonne[4]. This is composed of waste curbside collection and transfer costs of between $40 and $50 per tonne and disposal costs averaging $40 to $50 per tonne. Due to higher collection density, garbage collection costs for multi-family dwellings are lower, averaging $20 to $30 per tonne, resulting in combined collection and disposal costs for multi-family in the range of $60 to $80 per tonne in 1999. These costs are expected to rise to $110/tonne and $90/tonne for curbside and multi-family respectively by 2005. Given

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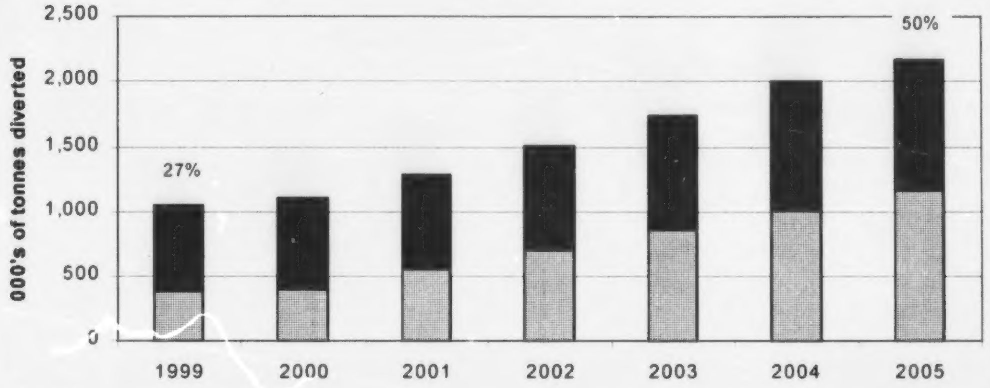
[4] Regarding waste collection and disposal costs:
The curbside collection of waste is estimated to be between $40 and $50 per tonne. This estimate is derived from an extensive survey of waste system costs undertaken by CSR in 1997 and refined with key stakeholder interviews by the WDO Secretariat in summer 2000. Curbside waste collection costs were almost exclusively captured in the $35 to $60/tonne range, with the heaviest weighting of municipalities in the $40 to $50 area. These represent costs reported by municipalities for both publicly and privately contracted collection systems. It is not clear if all capital and administrative costs have been included in reported figures. Similarly, waste collection costs for multi-family dwellings were collected in 1997 and updated in summer 2000. Reported multi-family collection costs generally fell in the $16 to $32 range with the majority between $20 and $30 per tonne. Though not common to all municipalities, waste transfer, where applicable, adds $10 to $15 to waste system costs. Waste disposal costs (landfill, energy from waste and waste export) were also thoroughly surveyed in 1997 and updated in June 2000. Disposal costs in the 13 major regions and cities of Ontario generally range from $30 to $60 per tonne but are as high as $150 per tonne in one region. Costs in rural and northern regions are generally lower. Average costs fell in the $40 to $50 range. Municipalities, particularly in the Greater Toronto Area expect rising costs for disposal in the next five years. The WDO conservatively estimates disposal in 2005 to be between $50 and $60 per tonne.

elsewhere, the overall goal cannot be achieved.

The combined diversion necessary to achieve 50% and the associated costs are shown in Figure 5.4, "50% Diversion Scenario Five-Year System-Wide Cost Projections." The projected annual net operating cost of this system is $260 million or approximately $112 per tonne.

Figure 5.4
50% Diversion Scenario Five year System Wide Cost Projections



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Organics	$25.0	$27.8	$38.1	$54.7	$105	$152.7	$179.4
Recycling	**$66.0**	**$41.4**	**$40.5**	**$47.0**	**$53.9**	**$63.1**	**$64.0**
Total	$101.0	$79.2	$89.6	$114.2	$172.9	$231.3	$260.4

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

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---

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these costs to manage waste, municipalities would be faced with higher overall system costs under a 50% overall scenario than the alternative of managing the material as waste.

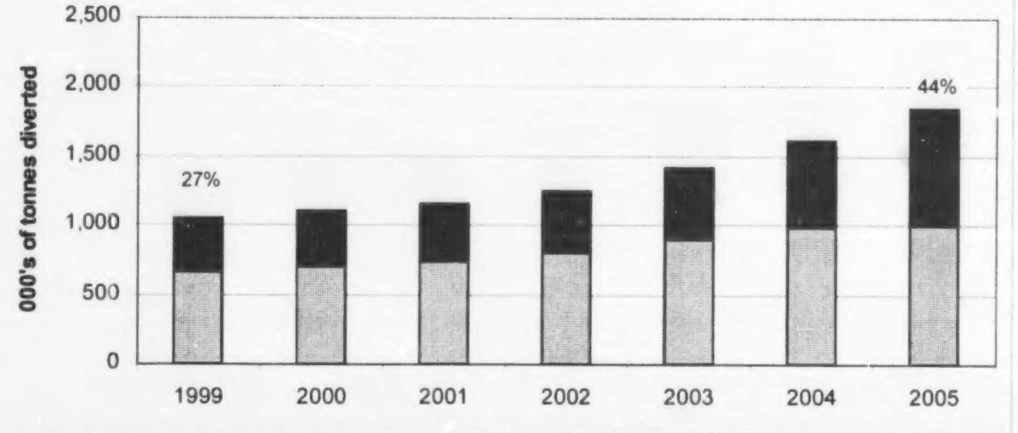
Based on the five-year plans developed by the WDO, the following key conclusions were reached:

> ***Regarding the recycling stream: based on the infrastructure already in place, the identified financial support from industry and assuming the availability of markets to absorb new materials, the 50% Diversion scenario for recycling is aggressive but achievable.***
>
> ***Regarding HSW: although the tonnages are relatively small, and the goal of the committee is ultimately to reduce the generation of HSW, the 50% Diversion scenario for HSW is achievable.***
>
> ***Regarding organics: it is the consensus of the WDO that the 50% Diversion scenario for organics is not achievable within a five-year timeframe and without the immediate development of an equitable cost sharing agreement. The middle ground scenario is considered achievable for the organics stream.***

The incremental difference between the 50% Diversion and Middle Ground scenarios for organics represents a shortfall of 284,000 tonnes. The WDO considered challenging the recycling stream to pick up all or a portion of the difference so that the 50% target could be met. However, as this would mean having to recover virtually 100% of the recyclables in every household in Ontario, and the 50% Diversion scenario for recycling is already thought to be a significant stretch, no additional recycling diversion is likely to be achieved within the five-year period.

Given these conclusions, a hybrid scenario has been developed which combines the 50% recycling scenario and the Middle Ground organic scenario to create a recommended WDO strategy that stretches the current flow residential diversion rate by 2005 to 44%. The cost of this scenario is shown in Figure 5.5.

Figure 5.5
Cost Projections for WDO Recommended Diversion Programs



System Cost $millions

HSW	$10.0	$10.0	$11.0	$12.5	$14.0	$15.5	$17.0
Organics	$25.0	$27.8	$32.6	$36.9	$57.4	$83.7	$118.5
Recycling	**$66.0**	**$ 41.4**	**$40.5**	**$47.0**	**$53.9**	**$63.1**	**$64.0**
Total	$101.0	$79.2	$ 84.1	$ 96.4	$125.3	$162.3	$199.5

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

these costs to manage waste, municipalities would be faced with higher overall system costs under a 50% overall scenario than the alternative of managing the material as waste.

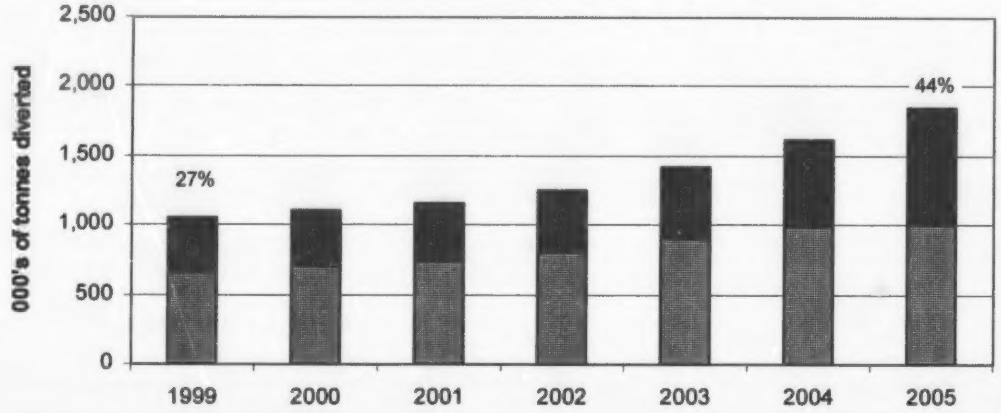
Based on the five-year plans developed by the WDO, the following key conclusions were reached:

> ***Regarding the recycling stream: based on the infrastructure already in place, the identified financial support from industry and assuming the availability of markets to absorb new materials, the 50% Diversion scenario for recycling is aggressive but achievable.***
>
> ***Regarding HSW: although the tonnages are relatively small, and the goal of the committee is ultimately to reduce the generation of HSW, the 50% Diversion scenario for HSW is achievable.***
>
> ***Regarding organics: It is the consensus of the WDO that the 50% Diversion scenario for organics is not achievable within a five-year timeframe and without the immediate development of an equitable cost sharing agreement. The middle ground scenario is considered achievable for the organics stream.***

The incremental difference between the 50% Diversion and Middle Ground scenarios for organics represents a shortfall of 284,000 tonnes. The WDO considered challenging the recycling stream to pick up all or a portion of the difference so that the 50% target could be met. However, as this would mean having to recover virtually 100% of the recyclables in every household in Ontario, and the 50% Diversion scenario for recycling is already thought to be a significant stretch, no additional recycling diversion is likely to be achieved within the five-year period.

Given these conclusions, a hybrid scenario has been developed which combines the 50% recycling scenario and the Middle Ground organic scenario to create a recommended WDO strategy that stretches the current flow residential diversion rate by 2005 to 44%. The cost of this scenario is shown in Figure 5.5.

Figure 5.5
Cost Projections for WDO Recommended Diversion Programs



System Cost $millions							
HSW	$10.0	$10.0	$11.0	$12.5	$14.0	$15.5	$17.0
Organics	$25.0	$27.8	$32.6	$36.9	$57.4	$83.7	$118.5
Recycling	$66.0	$ 41.4	$40.5	$47.0	$53.9	$63.1	$64.0
Total	$101.0	$79.2	$ 84.1	$ 96.4	$125.3	$162.3	$199.5

The projected decline in recycling costs in 2000 are based largely on current prices paid for recovered printed materials. Actual costs in this and future years are subject to a wide range of variables including the quantities recovered, material mix and prevailing market prices.

When calculated using the ministry historic calculation method, the percentage of reduction from disposal relative to 1987, is equivalent to approximately 46%. In turn, when this projected historic residential rate is combined with the reduction rate achieved from the IC&I sector, as is the Ministry of the Environment's protocol for the province-wide measurement system (as described in Section 4.1), a strong possibility exists of achieving the provincial 50% diversion target.

At a projected overall cost per tonne of $97, the recommended WDO scenario is also significantly less expensive than the three stream 50% Diversion scenario. It is interesting to note that the cost for the additional increment of diversion (i.e. the last 6%) jumps to $189/tonne (no credit for avoided disposal). At $97 per tonne average cost, the recommended WDO scenario is also expected to be competitive with future costs to manage waste.

5.5 WDO Program Delivery and Administrative Costs

Section 5.5 describes a recommended diversion path for the WDO for an initial five-year period leading to a projected residential waste diversion rate of 44%. The projected costs of this system for Ontario as a whole, assuming stable materials market conditions, are shown in Table 5.5.

It is agreed that these costs should be shared between industry and municipalities in the proportions recommended by the WDO Funding and Regulations Committee (as outlined in Section 1.1.2).

Given, for example, the projected total net cost for municipal recycling diversion programs in 2001 of $40.5 million, then industry's share of these program costs would be $20.25 million. Industry will, therefore, be required to contribute this amount to the WDO, in cash and/or through agreed to in-kind services (such as advertising space to be provided to municipalities at no charge).

As outlined in the proposed WDO funding allocation model, a portion of the industry cash component (i.e. 10% of the industry 50% share) will be utilized to provide incentives and/or to promote cost efficiency improvements. The remaining funds (and in-kind support) will be allocated among municipalities according to the municipal funding allocation models approved by the WDO.

Those industry sectors whose products are included in the level playing field mechanisms outlined in Section 6 will contribute this level of funding to the WDO, as determined on an annual basis.

In addition to these direct municipal support program costs, there will be additional expenses related to raising funds through an appropriate industry stewardship organization and for the delivery and administration of WDO agreed to programs. These costs will be built into the calculation of fees to be required from industry. Extraordinary program start-up costs such as legal, membership recruitment and registry, research, training, information technology and other program development costs will also be incurred. Allowance should also be made for the fact that it will be inevitable that contributions due from some obligated companies (i.e. small importers) will be delayed. In general, these start-up program delivery and administrative costs can be expected to represent a higher percentage of total program costs in the early years of a program and to decline (as a percentage of the total program budget) in subsequent years, as diversion programs mature. Experience from other jurisdictions has shown that these costs will range from 10% to 20% depending upon the complexity of the program, the level of support services provided by the agency, the maturity of the organization and the programs for which it provides support.

In the case of the WDO program, it is recommended that total industry contributions for the initial years of the program should be budgeted at 120% of the projected annual total municipal support costs. Total annual industry costs, therefore, will be equal to the sum of the municipal diversion program costs and the program delivery and administrative costs.

Detailed industry and WDO financial budget forecasts will be prepared once the key policy decisions have been taken by the province regarding the continuance of the WDO and implementation of the required enforcement mechanisms.

5.6 Options for Raising Funds from Industry

As noted, the projected level of industry financial support required to meet the goals and objectives outlined in this report cannot be met by voluntary industry contributions alone.

As per the guiding principles developed by the WDO, the responsibility for determining the most appropriate mechanisms for raising industry's agreed to share of WDO program costs rests with industry. An ad hoc industry caucus has examined this issue in detail in parallel with the WDO committee planning process. A wide range of alternative options have been examined leading to the recommendations presented in Section 6.

Some of the key issues related to the mechanics of how industry could make contributions related to packaging are summarized briefly. Representatives of the printed-paper and HSW sectors have participated in these discussions but there are many key funding issues unique to these sectors, which they are addressing separately. While appropriate enforcement mechanisms for these sectors are outlined in Section 6, discussions on the specific mechanics of how they will raise their share of agreed to WDO program costs are continuing.

The need for regulation

The representatives of the packaging chain industries agreed unanimously that regulation is essential to any further funding of the WDO.

Who should be the obligated party?

The packaging chain industries debated at length two principal alternatives with consideration given to a wide variety of key issues.

Option 1 - Place the legal obligation on the retailer as the most effective "choke point":

- larger number of obligated companies located in the province
- retailer obligations may include a significant proportion of packaging - own brands, direct imports and in-store packaging
- compliance could be higher if retailers effectively police the chain
- work with retailers to select the most appropriate funding collection mechanism (i.e. sales based, unit based)
- eases brand owner concerns over securing pass through of costs
- recognizes that some small retailers may escape enforcement mechanism
- protects the opportunity to include a fee at point-of-sale to ensure pass through of costs to consumers
- supports national pricing policy strategies of some chains
- avoids any mark-up of levy set higher up in the chain

Option 2 - Place the legal obligation on the brand owner/first importer:

- active support from retailers would be required to make this work
- public registry would be needed to track companies in compliance
- pass through of cost subject to commercial negotiation
- securing payment from in-store packaging suppliers a complication
- cost hidden from consumer; no economic incentive to change
- compliance rate expected to be lower
- final cost to consumer may be higher with mark-ups
- conforms with current proposed Quebec regulatory approach

Options considered for calculating financial contributions:

Retailer As Obligated Entity	Brand Owner As Obligated Entity
Sales based levy	Sales based levy
Unit based levy	Unit based levy
Volume/weight basis	Volume/weight basis
Transaction fee	
Charge at point-of-sale	

The specific retail channels/industry sectors to be included

Retailer As Obligated Entity	Brand Owner As Obligated Entity
Grocery	Packaged consumer goods sold in stores
Mass Merchandise	All packaged consumer goods (IC&I sales included)
Drug stores	In-store packaging
Hardware	
Gas stations	

Possible minimum threshold exemptions:

- by store size
- by annual sales
- quantity of packaging used

Key Conclusions Reached:

1. A level playing field regulation is essential to raise the share of funds expected to be required from packaged goods.
2. Industry must retain responsibility for raising and distributing its share of the costs concerning agreed to WDO programs.
3. The brand owner/first importer is the most appropriate point of obligation.
4. The widest possible net of consumer packaging and packaged consumer products (whether used in the home or similar products sold in IC&I accounts) should be included in the enforcement mechanism to ensure a level playing field and to lower the rate of contribution

required from all participating companies.

5. A sales-based levy represents the most administratively efficient mechanism for calculating individual company contributions.
6. There should be no minimum threshold exemptions set out in the enforcement mechanism but this issue should be addressed within the rules of the designated industry stewardship organization.

Part VI

Long Term Sustainable Funding Mechanisms

6. Long-Term Sustainable Funding Formula

The Memorandum of Understanding, which has guided the work of the WDO through this start-up period requires *"the identification of options for a long-term, sustainable funding formula prescribing appropriate levels of annual contribution and appropriate sources of contribution for long-term continuation of funding for,*

- *(i) up to 50 per cent of the net operating costs of municipal Blue Box programs and other municipal programs that recycle the same or similar materials, and*
- *(ii) future continuation of the programs set out in Part IV "C" of this MOU and for other programs with purposes similar to those described in this MOU*

It shall be assumed that the initial target for the long-term sustainable funding formula will be up to 27 million dollars, of which the LCBO will contribute up to 5 million dollars. Estimates of the necessary totals for the ensuing five years shall be provided along with an evaluation of the trends thereafter".

The WDO is pleased to report that a remarkable degree of consensus has been achieved through our work over the past nine months and the Board of Directors has unanimously approved a comprehensive set of recommendations related to the long-term funding of waste diversion programs.

Both industry and municipalities agree that the overarching objective is to establish self-sustaining municipal diversion programs and to eliminate the need for ongoing WDO financial support. However, given that:

- materials diverted from disposal are subject to fluctuations in commodity markets largely beyond the influence of municipalities;
- a transition period is required to improve the effectiveness and efficiency of existing municipal waste diversion programs;
- considerable program expansion is required to support the provincial goal of 50% waste diversion;
- an extensive public education and promotion effort is required to underpin this effort; and
- financial incentives are required for both industry and municipalities to review existing practices continually and to facilitate waste diversion,

the WDO Board has agreed to a program of financial and technical support for municipalities for a period of five years. The board recommends that the need for any ongoing support and the continuation of the WDO be reviewed at that time.

The board also unanimously agreed that the level of financial support required from industry to implement the recommended WDO programs cannot be raised without the implementation of adequate enforcement mechanisms by the Province of Ontario. While the voluntary agreements implemented through the MOU have succeeded, this level of voluntary support cannot be sustained beyond this initial year. **The proposed shared funding program outlined is conditional upon the province providing the level playing mechanisms required to ensure full industry participation**.

The WDO recognizes that the MOU specifically stipulates the identification of "options" for a long-term sustainable funding formula. While the board has reached broad consensus on how the overall funding program should be structured, the recommendations which follow for each specific waste stream are structured so that considerable flexibility remains for modifying key elements through ongoing discussions with the Ministry of the Environment.

6.1 Municipal Recycling

6.1.1 Key Assumptions

- Eligible materials would include all printed paper and packaging materials encompassed by the regulation and recovered from residential sources by municipally-sponsored recycling programs.
- Materials recovered from industrial, institutional and commercial generators would not be included in WDO funding programs.
- Payments would be made on the basis of materials diverted from disposal to beneficial uses, subject to defined criteria to be established by the WDO.
- Payment calculations would be based on the best available data from previous WDO reporting periods.
- Submission of standardized municipal data, as defined the by WDO, would be a condition of funding.
- The basis for the allocation of funds to individual municipalities would be the proposed WDO Municipal Allocation model developed by the WDO Funding and Regulations Committee which would be further refined by a municipal/industry task group.
- The model would be re-calibrated on annual basis, using the data submitted to the WDO, and with the oversight provided by a municipal/industry task group selected by the WDO for this purpose.

6.1.2 Options Considered

Industry Share

Prior to withdrawing from the WDO process, the Retail Council of Canada argued that the most appropriate and efficient mechanism to ensure sustainable waste diversion programs was to implement municipal waste management user fees. Other industry representatives have also indicated support in principle for this position.

Some industry representatives presented the case for restricting WDO funding to the provision of technical support and noted the significant investment required from industry to allow for the re-processing of recovered waste materials and to re-design products and packaging to minimize waste at source.

Municipal representatives argued that they have little or no control over the quantities or types of wastes that they are required to manage and that strong economic incentives were required to encourage manufacturers to design for recyclability and to stimulate demand for recovered materials in their packaging.

In keeping with the direction given in the MOU, debate on the appropriate share from industry varied between a minimal share and maximum of 50% of the net costs of recycling.

Basis for the Calculation of Net Costs

The issue of calculating the net cost encompassed three key concerns. They were:

1. whether the calculation of net costs should be based on the reported costs for all municipal programs in Ontario or whether the calculation should be restricted only to those municipal programs deemed to be efficient by some objective standard;
2. whether the calculation of net costs should take into consideration the avoided costs of collecting and disposing of these materials as waste; and
3. how to calculate the average value of the "basket of goods" to be used in the net cost calculation in cases where the municipality shares revenue with a contractor, or where the prices received are sub-optimal due to, for example, poor quality control.

Geographic Variations

The WDO analyzed two alternative options concerning geographic variations. They were:

1. calculating the average net costs for recycling of four different program types in the province (large urban, small urban, rural and the north), with WDO payments tied to appropriate efficiency standards for each;
2. refinement of an allocation model first developed for the Quinte, Ontario recycling program. The model would first establish a standard operating cost model for a baseline Ontario recycling program and then use population density, distance from markets, and material mix and composition as the key modifiers in calculating individual municipal payments (see description in 1.1.2).

Efficiency Standards

Both industry and municipal representatives strongly supported the need for efficiency standards in calculating any payments due to municipalities. Options considered included:

1. establishing appropriate efficiency standards for each defined region of the province;
2. varying individual municipal payment calculations relative to their performance by quartile (i.e. the higher the relative efficiency, the higher the WDO payment);
3. setting a "best practice" standard for the province as a whole as the basis for payments out;
4. linking payments to be made by the WDO to other municipal actions such as the adoption of user pay programs;
5. tying any payments considered to investments in improving program performance only;
6. no consideration of efficiency standards; and
7. partial payment based on the net cost calculation, with a portion of the calculated total reserved to promote/reward efficiency.

Sunset Provision

Industry and municipal representatives were sharply divided on the issue of the term of any anticipated funding. Municipal representatives tended to favor an open-ended agreement during which costs were shared until waste diversion programs became self-sustaining. This agreement could be reconsidered if economic conditions changed in future years. Conversely, industry representatives favored a clearly defined period of support by which time such programs would have become locally self-financing.

6.1.3 Preferred Options

The WDO Board of Directors recommends the following:

(i) The net costs of municipal recycling programs would be shared on a 50/50 basis between industry and municipalities for a period of five years, subject to implementation of level playing field mechanisms as outlined below.

(ii) The net cost calculation would not include consideration of avoided collection and disposal costs during this period.

(iii) The net cost of recycling for Ontario as a whole would be calculated on the basis of an annual province-wide survey of all municipal waste diversion program costs based on a standardized methodology of tonnage and cost reporting that the WDO would adopt.

(iv) The municipal funding allocation model that is being developed in cooperation with municipal representatives drawn from the WDO working groups, should be used as the basis for the distribution of WDO funds in support of municipal recycling programs. This is subject to:

- a trial run of the model using the reported 1999 costs for the majority of municipal recycling programs in the province;
- continued refinement of and agreement to the population density factors and the volume-to-weight cost allocation factor which will influence the range of per tonne fees paid to individual municipalities;
- use of an efficiency standard for 'year one' of the WDO program equivalent to 90% of the average Ontario municipal recycling program costs for the previous year;
- reserving 10% of the industry share of funds to be used to promote and recognize increased cost effectiveness in municipal recycling programs and pilot projects; and
- annual review and re-calibration, as required, of the key data used in the model.

(v) The Province of Ontario would adopt a regulation requiring brand owners or first importers of all packaged consumer products sold in the province to recover their packaging material, or alternatively, to be a member in good standing of a WDO-approved industry packaging stewardship organization which takes on this responsibility on their behalf.

The key elements of the proposed packaging regulation are:

1. The brand owners or first importers of packaged consumers products sold in Ontario would be required to implement and finance programs that recover their packaging, independent of municipal waste management programs, to meet specified performance targets, and to provide annual reports on these programs to the WDO.

2. All in-store packaging (i.e. applied at point of sale including bags) would be included in the regulation.

3. An acceptable form of alternative compliance would be membership in good standing of a WDO-approved industry stewardship program that provides financial and technical support to municipalities operating packaging waste diversion programs.

4. Retailers should require certification from suppliers that deliver to, or purchase any packaged products for their stores to ensure that they are included in an approved stewardship program, and that the names of these companies would be maintained in a publicly available registry.

5. Penalties for brand owners and first importers not in compliance would include fines plus any stewardship fees due from previous years.

(vi) That the publisher, importers and/or distributors of designated printed materials sold or distributed in the Province of Ontario recover their materials, or be included as members of a WDO-approved industry stewardship organization.

The key elements of proposed printed material agreement are:

6. Newspapers, magazines, advertising flyers, fine papers, catalogues and directories would be included.

7. Where the cost of recovering these materials through efficient municipal recycling programs is greater than the revenue received from sale of these materials, publishers, importers and/or distributors would contribute up to 50% of this cost differential.

8. An approved industry stewardship organization would determine on an annual basis the appropriate share of costs between newspapers, other printed paper and packaging materials.

9. The proposed WDO funding allocation model would be used in determining the appropriate cost allocation subject to:

   (a) WDO agreement on key model assumptions regarding appropriate material densities, cost allocations by weight/volume, and material revenues used to determine each industry's share of financial contributions to support WDO programs. These assumptions should also be consistent with those used for determining the municipal funding allocation;
   (b) completion of field tests of the proposed model for a minimum of 10 municipalities and for estimating the net municipal recycling costs for newspapers, other printed paper and for packaging for the province as a whole;
   (c) incorporation of mechanisms to take into account surplus revenue from the sale of recovered newspaper in any given year against calculated costs related to newspaper recycling in subsequent years.

10. A credit would be given to offset a portion of the calculated newspaper share of WDO costs in exchange for newspaper advertising space made available at "no charge" to Ontario municipalities and the WDO to promote waste reduction and diversion.

11. The equivalent of at least $1.3 million of the in-kind contribution of advertising space would constitute part of industry's financial contribution to the 50% share of municipal program costs.

12. The printed paper sector would make a financial contribution reflecting a fair share of the WDO/industry stewardship organization's costs related to communications, technical support and administration.

(vii) The Government of Ontario would implement mechanisms to ensure that municipalities establish the programs recommended by the WDO in support of the province's waste diversion objectives and to make the costs of these programs visible to their residents.

The key elements of municipal enforcements mechanisms would include:

1. Municipalities would be required to calculate local waste management and waste diversion services costs and to notify residents of these costs.

2. Municipalities that achieve less than a 50% waste diversion rate (based upon the base year of 1987) by 2005 would be required to implement incentive schemes (such as bag limits or user fees), or alternatively, to have their WDO financial contribution reduced.

(viii) The LCBO would contribute $5 million per year (on behalf of the beverage alcohol industry that it represents at retail) to support the recycling programs of the WDO for the five-year period, including grant payments to municipalities, LCBO in-store packaging and an appropriate share of the WDO program and administration costs.

6.2 Long-Term Sustainable Funding Mechanisms for Organic Waste Diversion

6.2.1 Key Assumptions

- The work of the WDO Organics Task Group dealt with residential organic waste only, generated by both single family and multi-family homes. IC&I organic waste was not included in the assessment, although it was acknowledged that the quantities of organic waste involved would help support the overall organic waste processing infrastructure, and make it more financially sustainable and viable.
- The costs of a residential waste management system which diverts sufficient organic materials to reach the 50% target (780,000 tonnes/year additional organic waste diversion) will be considerably more than the cost of the existing provincial waste management system.
- It is difficult to identify brand owners for most residential organic materials, therefore, cost-sharing with industry similar to that proposed for recycling and HSW is not considered a viable solution. The province is seen as a more appropriate partner in the sharing of costs for this system.
- Given the increased system cost involved, it is considered essential that the Province of Ontario provide financial support to encourage significantly increased residential organic waste diversion if the provincial target is to be met.

6.2.2 Options Considered

Industry Funding

It is acknowledged that the organic waste stream is significantly different to the recycling or HSW streams, in that brand owners and industry funders are difficult, if not impossible, to link directly to the waste produced. About 34% of the residential organic waste stream consists of leaf and yard waste, for which no brand owner can be identified. An additional 50% is food waste, for which brand owners would be difficult to identify. It is speculated that about 70% of food waste is not readily identifiable by brand owner. Much of this food waste is related to spoilage, table scraps, peelings, etc., largely within the control of the consumer rather than resulting from a manufacturer's operation, which can be modified. The remaining 16% of the residential organic waste stream is compostable sanitary and low-grade papers, for which it may be possible to identify a related brand owner.

It was concluded that brand owners of paper products handled by the composting and/or digestion stream could be reasonably expected to contribute a portion of the costs related to the 16% of the residential organic waste stream made up of their products, although it was argued that adding more difficult-to-manage paper products with plastic components might increase the overall organic diversion system costs.

The task group discussed the concept of raising funds through food brand owners at length, but it was not widely accepted because it was considered unworkable and unfair. The group considered the concept of a levy on all food producers and distributors more workable and concluded that it should be explored further. The task group acknowledges the challenge of getting the food industry to agree to this financial responsibility.

The task group examined the possibility of obtaining funding from the brand owners of products related to lawn and garden care (fertilizer and seed companies, garden centres, etc) who benefit from the existence of the systems which generate yard waste, but this was also dismissed as being unreasonable and unworkable.

It was agreed generally that no industry funder could be identified for leaf waste, which would logically fall under municipal responsibility.

Provincial Funding

The group agreed that municipalities likely would not be willing to bear the additional $89 million/year cost to roll out the comprehensive organics systems needed to reach a 50% diversion target, given that disposal generally represents a lower cost alternative. In addition, municipalities feel that if 50% waste diversion is a provincial objective, the province should help to pay this incremental cost. The province previously provided significant start-up assistance, and ongoing operating cost assistance to municipalities to get the municipal recycling system off the ground, and the suggestion has been made that the province should consider the same level of support for organics diversion.

Elements of a Funding Formula

Without financial assistance, Ontario municipalities likely will not move forward on implementing organics diversion programs in the current climate of fiscal restraint.

The WDO Organics Task Group identified the need for both start-up capital funding to "prime the pump" and get the organics system infrastructure in place, and also assistance with ongoing operating costs to make the net costs of organics comparable to handling the same waste stream as garbage. However, it cautions that any funding formula must be flexible and not limit the amount that can be funded in one category or the other.

Both private sector and municipal representatives identified the need for flexibility in how the funding was allocated as a key component to success. The funding should be structured so that innovative private sector/public sector partnerships can be arranged to finance the construction and operation of composting and digestion facilities, and also arrange for the capital investments that would be required to purchase new trucks, containers, etc. needed to implement the new systems.

The funding for previous programs (e.g. the early Blue Box funding) was constrained in how capital investments underwritten by the private sector could be supported. Any new funding formula must recognize the innovative approaches and partnerships that municipalities and private businesses now form to implement new programs, and not limit progress in this area by constraining how funding can be obtained.

Geographic Variations

It was acknowledged that small communities, rural areas and many smaller communities in Northern Ontario probably do not perceive management of residential organics as a critical issue at this time. Therefore, the group assumed that these areas would generally continue to rely on the systems currently in place (backyard composting and some leaf and yard waste management). Financial assistance would ensure that these systems could be implemented, where they are not currently in place. In the absence of financial assistance, it is unlikely that any action in this area will be taken.

6.2.3 Preferred Options

The WDO Funding and Regulations Committee reviewed the recommendations made by the Organics Task Group against the funding recommendations developed for municipal recycling and HSW management, and scoped out a set of funding recommendations for organics in more detail. The task group then submitted these recommendations to the WDO Board which approved them for forwarding to the Minister.

With respect to funding of the organics system, the WDO Board recommends that the costs of organic diversion programs should be shared for the initial five-year period in the following manner:

Industry	Province / Municipalities
50% of paper related costs (which comprise approximately 16% of the targeted organic stream)	Each share 50% of remainder of organic diversion system costs

This funding formula is applicable where sanitary and other low-grade papers are included in the compost stream. Industry is not expected to contribute to the costs of food and/or yard and garden waste diversion programs. The preliminary assumption is that sanitary and low-grade papers represent approximately 16% of the targeted organic wastes, with industry contributing up to 50% of the costs of managing paper products. This assumption can be confirmed through waste audits that are being funded by the WDO and are currently underway.

To ensure that municipalities take action to increase significantly organic waste diversion in support of the provincial waste reduction goal, the Government of Ontario will need to implement mechanisms to make certain that municipalities establish organic diversion programs and to make the costs of these programs visible to their residents.

Key elements of municipal enforcement mechanisms that could be included in such a mechanism include the following:

1. extend the minimum waste diversion service requirements currently stipulated in the existing 3Rs Regulations to include expanded organic waste diversion;

2. enact regionally-appropriate bans on organic waste disposal in landfill sites;

3. require municipalities to calculate the costs of local waste management and waste diversion services and to notify residents of these costs; and

4. require those municipalities that achieve less than a 50% waste diversion rate (calculated on the base year of 1987) by 2005 to implement incentive schemes (such as bag limits or user fees), or alternatively, to have their WDO financial contribution reduced.

It is also considered essential to address the lifecycle impacts of organic waste diversion in more detail, to ensure that in each case the system chosen by a municipality is the most financially and environmentally efficient. A review of the requirement to provide for the separate collection of organics wastes in northern municipalities should form part of this process.

Market development for compost products is absolutely essential to the success of any comprehensive organics strategy in Ontario, and must form an integral part of the ongoing efforts to divert organics from disposal. Markets can be encouraged through mandatory procurement requirements by the provincial and municipal governments to use compost from municipal organics programs in government construction projects, and through the encouragement of market development in other areas. The WDO has allocated significant resources to market development for compost in Rounds One and Two funding.

The funding for residential organic waste diversion systems could be disbursed in a number of ways. Some key points identified by WDO members are noted below:

- A flat fee per tonne diverted could provide sufficient incentive to encourage many municipalities to move forward with organic diversion systems. If municipalities know that they are assured a secure revenue stream (e.g. $50/tonne of organic waste diverted), this will provide sufficient financial security to plan for a long-term organics diversion system.

- Funding should be paid to municipalities directly, but not constrain them in cases where collection and processing is contracted to the private sector, and, therefore, capital investments are rolled into the operating costs charged to municipalities.

- The private sector are considered an essential partner to the success of a comprehensive organics diversion strategy, therefore, any discussions on future funding formulas must include private sector waste management companies which now provide collection and processing services to many Ontario municipalities.

- The funding should be tied to incentives to increase diversion, but should be carefully constructed not to discourage municipalities which are at low levels of diversion at this time. Some municipalities felt that the formula should be structured so that higher amounts are paid to municipalities with high diversion levels. There was a concern that this would discourage some municipalities which do not have comprehensive systems in place at this time. An equitable approach to finding a balance between these two points needs to be identified.

The ultimate funding formula for organics will reflect the fundamental differences between organics, where few brand owners can be identified, and recycling and HSW, where the fundamental principal is one of shared responsibility.

6.3 Long Term Sustainable Funding Mechanisms For HSW Management

6.3.1 Key Assumptions

- On an interim basis, the materials to be included in a WDO-supported HSW management program would include those identified by the Draft Criteria and Sample List of Products developed by the WDO HSW Task Group and included as Appendix B of the HSW Interim Five-Year Plan.

- The materials included on this list would be reviewed on an annual basis. Over the longer term, materials to be included would be defined by scientific criteria (such as those criteria being developed by the Canadian Standards Association [CSA] Household Hazardous Waste [HHW] Definition Project) or have received joint agreement that they need special care (i.e. latex paint).

- HSW materials recovered from industrial, institutional and commercial generators would not be included in WDO funding programs.

- The net costs of HSW programs across the province would be calculated by the WDO annually based on data submitted by municipalities. The WDO program budget for a given year would be based on the best available cost data from the previous WDO reporting period.

- Submission of standardized municipal data, as defined by the WDO, would be a condition for funding.

- A municipal HSW funding allocation model will be developed by the WDO and will include incentives to encourage the recovery of only those materials requiring special care and which reward program operating efficiencies.

- The funding model will be re-calibrated on an annual basis, using the data submitted to the WDO and with oversight provided by a municipal/industry task group selected by the WDO for this purpose.

- Communication and education programs which encourage consumers to purchase, use and dispose of HSW products properly (such as the proposed BUD program—Buy responsibly, Use it up and Dispose of the remainder responsibly) would be an essential element of any WDO-supported HSW program.

6.3.2 Options Considered

The task group examined five alternative approaches for the long-term funding of HSW programs:

Status Quo

Municipalities currently pay for the costs of HSW management from their local tax base. The resources available for this task vary considerably by municipality and the existing network of HSW depots has developed on an ad hoc basis. The types of materials accepted by these programs also vary with no clear scientific criteria for defining those which require special care. No direct incentives exist for the manufacturers of these products to re-formulate or reduce the quantities of these products entering the municipal waste stream.

Municipalities have no direct influence over the types and quantities of HSW materials disposed of by residents and the costs of managing these materials is acknowledged to be very high in relation to other materials in the municipal waste stream (i.e. disposal costs currently average $1,300/tonne). In some cases, empty packaging that could be managed through other municipal diversion programs are incurring unnecessarily high costs where they are managed through HSW depots.

Municipal User Pay Fees

The Retail Council of Canada (with the support in principle of other industry sectors and some municipalities) proposed the adoption of user fees as the most appropriate and effective mechanism for the long-term funding of all elements of municipal solid waste management systems. It is argued that this approach provides the most efficient and effective mechanism to make residents aware of the costs of waste management services, provides financial incentives to encourage increased diversion and sends indirect signals to manufacturers to minimize the production of HSW materials in response to consumer purchasing practices.

100% Industry Funding

The task group also considered alternative stewardship approaches, such as the HHW regulations in British Columbia, which require industry to establish, operate and fund the full costs of an industry self-managed program. It was argued that this approach provides maximum flexibility for industry on how best to steward their products and provides the strongest economic incentive to internalize these costs or to reduce or reformulate HSW products. However, this approach provides no incentive for consumers to change their purchasing, usage and disposal habits.

Functional Split Model

In essence, municipalities would be responsible for funding all functions related to HSW collection and administration. Industry would have full financial responsibility for post-collection treatment of HSW residuals.

Municipal representatives determined that this approach would provide no ongoing incentives for municipalities to continue HSW recycling, reuse and other innovative treatment programs that would reduce total HSW management system costs. Concerns were also raised that the costs falling to municipalities could be greater than 50% of total system costs as the quantities requiring disposal declined over time.

Industry favored this approach given the ability to influence the final treatment and disposal options chosen by municipalities and the clarity provided by clearly defined roles and responsibilities. Industry also expressed concern that they could not exert any direct influence over municipal decisions regarding the HSW collection management programs or their administrative costs.

The discussion also highlighted that industry was at greater financial risk if no financial incentives were put in place to assist municipalities with cost reduction programs.

Shared Model

Through the "shared model" approach, industry and municipalities would share all administration, collection and disposal costs equally. A 'BUD' communications campaign would also be implemented on a shared-cost basis. Municipalities would be encouraged to seek start-up capital for new HSW programs through existing provincial and federal infrastructure grant programs. The capital costs of existing HSW programs, amortized on an annual basis, would be included in the municipal cost calculations for existing programs.

The discussion led to agreement of the need, in principle, for performance incentives for municipalities but more analysis was required to ascertain how these might be structured.

6.3.3 Preferred Options

The WDO Board of Directors recommends the following:

(i) The cost of HSW management programs should be shared on a 50/50 basis between industry and municipalities for a period of five years, subject to implementation of a level playing field mechanism as outlined below.

(ii) These costs should include a communication and education campaign promoting the responsible purchase, usage and disposal of these products.

(iii) Municipalities should retain operational responsibility for local HSW administration, collection and arranging for post collection treatment.

(iv) A WDO municipal funding allocation model should be developed which provides financial incentives for municipalities and industry to reduce program costs in HSW collection and post-collection treatment.

(v) The financial savings achieved through these actions should be equalized between industry and municipalities in calculating required industry financial contributions in the following year.

(vi) The Province of Ontario should adopt a regulation requiring brand owners or first importers of all designated HSW products sold in the province to recover designated residual HSW materials, or, alternatively, to be a member in good standing of a WDO-approved industry stewardship organization which takes on this responsibility on their behalf.

The key elements of the proposed HSW regulation are to:

1. require brand owners or first importers of consumer HSW products sold in Ontario to implement and finance programs to manage designated post consumer residual materials, independent of municipal waste management programs, and to provide annual reports on these programs to the WDO;

2. include in the definition of HSW materials those materials agreed to by the WDO HSW Task Group (included as Appendix B of the HSW Interim Five-Year Plan);

3. agree that an acceptable form of alternative compliance would be membership in good standing of a WDO-approved industry stewardship program providing financial and technical support to municipalities operating HSW waste management programs;

4. retailers should require certification from their suppliers that all designated HSW products sold in their stores are included in an approved stewardship program; and

5. establish penalties for brand owners and first importers not in compliance that would include fines plus any stewardship fees due for previous years.

Part VII

Future WDO Roles and Responsibilities

7. Future Roles & Responsibilities of the WDO

The two most frequently stated criticisms of the WDO process to date have been:

1. The process is moving too fast to allow for the participation of and consultation with all of the key stakeholders and to allow adequate time for more careful research and analysis.

It is the WDO's assessment that:

(a) Many of the key issues tackled in this report have been under discussion in Ontario for more than a decade.
(b) The 100+ participants in the WDO process represent the widest possible cross-section of this experience yet assembled in Ontario to try to *resolve* these issues.
(c) The limited time frame set out in the MOU ensured that this participation was focused, intensive and effective.
(d) The specific details of the WDO's work would have been improved by having had more time however, the broad recommendations and conclusions reached by the WDO would still stand.

2. The scope of the WDO is far too narrow in that it is focused solely on issues related to the diversion of only part of the residential waste stream.

It is the WDO's assessment that this is a valid and important criticism that should be addressed if the WDO is to continue. In particular:

(a) The stated provincial goal is to reduce the per capita disposal of waste in the Province of Ontario by 50%, relative to a 1987 baseline. This goal encompasses all wastes, not just residential wastes.
(b) By focusing solely on the diversion of recyclable residential materials, compostable organics and designated HSW products, the legitimate charge has been made that the MOU/WDO has pre-determined that recycling, composting and the separate collection and management of HSW are *de facto* always the best environmental and economic solutions. Many participants in this process have argued that the WDO should be charged with examining other waste management options including reduction at source, energy recovery and landfill for appropriate materials and for some regions of the province.
(c) Recommendations have been made throughout this report regarding the need for a lifecycle inventory of the environmental costs and benefits of proposed recycling and organic diversion, and HSW management programs. The parameters and procedures for these assessments will need to be carefully defined.
(d) The concept of extended industry responsibility for waste, and the extent of that responsibility remains a contentious issue. Some industry sectors have refused to participate in the WDO process and fundamentally reject this concept.
(e) There is widespread agreement among municipalities, industry and non-governmental organizations that user pay programs are essential to achieving significantly increased waste diversion and to making residents aware of the true costs of waste management. However, perceived operational difficulties (especially in large cities) and a lack of political will at the municipal and provincial levels of government present significant barriers to widespread adoption of this mechanism to make waste diversion programs more effective and sustainable over the long term.
(f) Various participants have suggested a laundry list of other waste materials that should be addressed by the WDO (including tires, fluorescent light tubes, textiles, waste electrical and electronic products and various components of IC&I wastes).

The WDO believes that the "relatively" narrow focus established for the WDO in this initial year was appropriate. It has allowed a widely disparate group of individuals to make significant progress on a number of contentious issues that have been debated in Ontario *ad nauseum*.

That said, the WDO recommends that if the organization is to be established as a permanent entity, its scope should be extended, once the programs and activities recommended in this report have been implemented in large measure, to address these and other key concerns related to the development of an environmentally effective, economically sound, sustainable waste management system for the Province of Ontario.

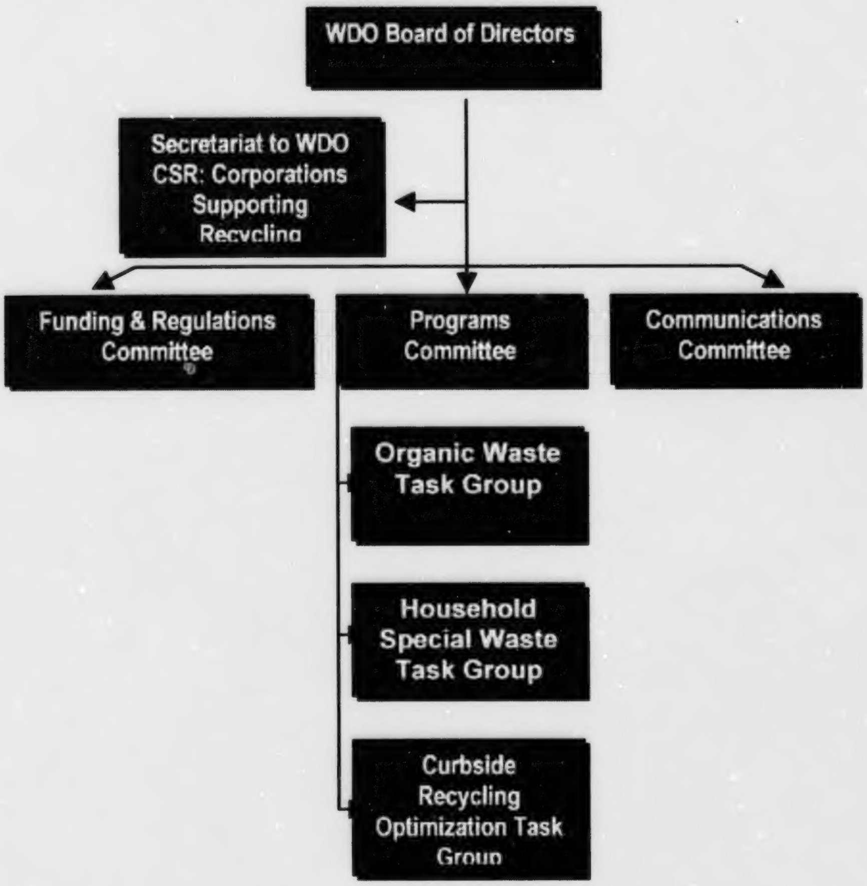
Appendix 1

Ontario Waste Diversion Organization Chart

Formally incorporated in December 1999, the Waste Diversion Organization (WDO) set out to meet the goals and objectives established for it in the Memorandum of Understanding (MOU) signed by:

- Ministry of Environment
- CSR: Corporations Supporting Recycling (CSR)
- Canadian Newspaper Association (CNA)
- Liquor Control Board of Ontario (LCBO)
- Association of Municipalities of Ontario (AMO)
- Canadian Paint and Coatings Association (CPCA)
- Canadian Manufacturers of Chemicals Specialties (CMCS)
- Recycling Council of Ontario (RCO)

In order to meet the objectives set out in the MOU, the WDO invited a broad range of participants from municipalities, industry and non-governmental organizations to participate in the planning and implementation work required.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Secretariat to WDO CSR: Corporations Supporting Recycling
Funding & Regulations Committee
Programs Committee
Communications Committee
Organic Waste Task Group
Household Special Waste Task Group
Curbside Recycling Optimization Task Group

WDO Board, Committees and Task Groups, Members and Observers

Board of Directors

Name	Title	Affiliation
Elwood, E. Peter (Chair)	Senior Vice President	Unilever Canada
Brandt, Andy	Chair and CEO	Liquor Control Board of Ontario
Cassidy, Terry	Councillor	City of Quinte West
Davis, Garry B	President & COO	Amcor PET Packaging
Eames, Tony	President & CEO	Coca-Cola Ltd.
Hanson, John	Executive Director	Recycling Council of Ontario
Hoare, Ron	Vice Chairman & CEO	Para Paints
Honderich, John	Publisher	Toronto Star Newspapers Ltd.
Jardine, John	Commissioner, Environmental Services and City Engineer	City of London
King, Joan	Councillor	City of Toronto
Partington, Peter	Regional Councillor	Regional Municipality of Niagara
Piwek, Brian	Vice Chairman, President & CEO	The Great Atlantic & Pacific Company of Canada Ltd.
Observers		
Bassett, Damian	CEO	Ontario Waste Diversion Organization
Ker, Gerry	Director, Corporate Policy	Liquor Control Board of Ontario
Kotnawala, Anne	President	Canadian Newspaper Association
Kovrig, Marina	Vice President, Development & External Affairs	Recochem Inc.
Lal, Stien	Deputy Minister	Ontario Ministry of the Environment
Vanini, Pat	Director, Policy & Government Relations	Association of Municipalities of Ontario
Elizabeth, Johnson (Recording Secretary)	Executive Assistant to the CEO	WDO

Funding & Regulations Committee

Name	Title	Affiliation
King, Joan (Co-chair)	Councillor	City of Toronto
Elwood, Peter (Co-chair)	Senior Vice President	Unilever Canada
Brandt, Andy (Alternate Chair)	Chairman	Liquor Control Board of Ontario
Cassidy, Terry (Alternate Chair)	Councillor	City of Quinte West
Bailey, Richard	Vice President	Kraft Canada
Kothawala, Anne	President	Canadian Newspaper Association
Lackie, John	Chairman	Recycling Council of Ontario
Lemay, Denis	Executive Vice President & Assistant General Manager	Sobeys Ontario Division
Newell, Colleen	Vice President, Environment & Government	Pepsi-Cola Canada Ltd.
Nigro, Paulo	President & CEO	Tetra Pak Canada
Parker, Glenn	Manager, Corporate Sustainable Development	Procter & Gamble Inc.
Pepper, Todd	General Manager	Essex-Windsor Solid Waste Authority
Pollock, Andy	Director, Policy & Planning	City of Toronto
Thiemann, Doug	General Manager	Home Hardware
Warman, Robert	Alderman	City of Barrie
Observers		
Bassett, Damian	CEO	Ontario Waste Diversion Organization
Hinds, John	Vice President Public Affairs	Canadian Newspaper Association
Ker, Gerry	Director, Corporate Policy	Liquor Control Board of Ontario
Mathewson, Anne	Corporate & Environment Communications Manager	Tetra Pak Canada
Sackville-Duyvelshoff, Carol	Assistant Director, Waste Management Policy Branch	Ministry of the Environment
Vanini, Pat	Director, Policy & Government Relations	Association of Municipalities of Ontario
White, Robert	Director, Scientific & Regulatory Affairs	Non-Prescription Drug Manufacturers Assoc. of Canada
Stephenson, Derek (Secretary)	President	Enviros RIS

Communications Committee

Name	Title	Affiliation
Eames, Tony (Co-chair)	President & CEO	Coca-Cola Ltd.
Partington, Peter (Co-chair)	Councillor	Regional Municipality of Niagara
Honderich, John (Alternate Chair)	Publisher	Toronto Star Newspapers Ltd.
Antler, Susan	President	EnviroBusiness Directions
Boshcoff, Ken	Mayor	City of Thunder Bay
Brown, Dennis	Mayor	Town of Atikokan
Chalmers, Gerry B.	Director, Procurement & Logistics	Benjamin Moore & Co. Ltd.
Grossi, Robert	Mayor	Town of Georgina
Kothawala, Anne	President	Canadian Newspaper Association
Murray, Graeme	President	Colgate-Palmolive Canada Inc.
Rose, Wendy	Vice-President & Executive Director	Urban Pest Management Council of Canada
Shaw, Ronald	Chief Administrative Officer	City of Stratford
Vanini, Pat	Director, Policy & Government Relations	Association of Municipalities of Ontario
Observers		
Hinds, John	Vice President, Public Affairs	Canadian Newspaper Association
McConnell, Barbara (Secretary)	Vice President, Communications	CSR: Corporations Supporting Recycling

Programs Committee

Name	Title	Affiliation
Jardine, John (Co-chair)	Commissioner, Environmental Services and City Engineer	City of London
Hoare, Ron (Co-chair and Co-chair, Household Special Waste Task Group)	Vice Chairman & CEO	Para Paints
Garry Davis (Alternate Co-chair)	President	Amcor Twinpak-North America Inc.
Terry Cassidy (Alternate Co-chair)	Councillor	City of Quinte West
Bacopoulos, Angelos (Co-chair, Curbside Optimization Task Group)	General Manager, Solid Waste	City of Toronto
Banks, C. Mitchell (Co-chair, Organics Task Group)	Manager, Government Relations and Regulatory Affairs	Procter & Gamble Inc.
Kraus, Walter (Co-chair, Curbside Optimization Task Group)	Director, Environmental Affairs	George Weston Ltd. / Loblaw Companies Ltd.
McNally, J. P. (Pat) (Co-chair, Organics Task Group)	Director, Solid Waste Division, Environment & Transportation Dept.	Regional Municipality of Ottawa-Carleton
Zamojc, Mitch (Co-chair, Household Special Waste Task Group)	Commissioner, Public Works	Region of Peel
Banks, Sandra	Vice President, Public Affairs	Coca-Cola Beverages Ltd.
Barber, G. R. (Randy)	Councillor	Town of Markham
Clow, Rick D. R.	General Manager	Centre & South Hastings Waste Services Board (Quinte Waste Solutions)
Haase, Gottfried	Technical Director Environmental Affairs	Kraft Canada Inc.
McVitty, Catherine	Manager, Environmental & Corporate Affairs	Unilever Canada
Peirce, Brian	Technical Director	The Nu-Gro Corporation
Perchuk, Richard	Municipal Engineer	City of kenora
Pickard, Bill	Manager, Environmental Services	County of Peterborough
Rathbone, Geoff (Secretary)	Vice President, Market and Technical Development	CSR: Corporations Supporting Recycling
Chris van Rossem Assistant	Information Systems	CSR: Corporations Supporting Recycling

Household Special Waste Task Group

Name	Title	Affiliation
Hoare, Ron (Co-chair)	Vice Chairman & CEO	Para Paints
Zamojc, Mitch (Co-chair)	Commissioner, Public Works	Region of Peel
Alexander, Susan	Environmental Services	The Regional Municipality of Hamilton Wentworth
Berry, Ed	Director, Regulatory Affairs	Canadian Manufacturers of Chemical Specialties
Collins, Mark	Waste Reduction Officer, Municipal Works	City of Barrie
David, Karin	Director, Member Services	Canadian Paint & Coatings Association
Goulding, Terri	Environmental & Regulatory Affairs	Home Hardware Stores Ltd.
Hunter, Eric	Director, Compliance	Safety-Kleen Ltd.
Johnson Cover, Trish	Manager	Regional Municipality of Ottawa-Carleton
Kovrig, Marina	Vice President, Development & External Affairs	Recochem Inc.
Marsales, Claudia	Waste Reduction Coordinator	Regional Municipality of Haldimand/Norfolk
Michaels, Tim	Manager, Waste Diversion	City of Toronto
Millard, Ralph	Executive Vice President	Rechargeable Battery Recycling Corporation
Peirce, Brian	Technical Director	The Nu-gro Corporation
Peterson, Susan	Director, Environment, Health & Safety	ICI Paints (Canada) Inc.
Bennett, Lorraine (Alternate)	Product Safety Specialist	ICI Paints (Canada) Inc.
Ralph, Janine	Manager, Planning & Policy, Solid Waste Mgmt. Division	Region of Niagara
Rathlou, Stephen	Regulatory Affairs Manager	S C Johnson & Son Ltd.
Rhodes, John	Leader, Solid Waste Disposal	City of Kingston KARC
Robinson, Linda	Recycling Coordinator	Town of Mono
Veiga, Peter	Waste Management Programs Coordinator	Town of Markham
Observers		
Bolubash, Gail	Director, Government & Public Affairs	Canadian Petroleum Products Institute
Cook, Rob	Executive Director	Ontario Waste Management Association
Dybka, Zenek	Director, Ontario Regional Affairs	Canada's Research-Based Pharmaceutical Companies
Smith, Eileen	Manager, 3 R's	Ministry of the Environment
Hruska, Joe (Secretary)	Vice President, Municipal Development	CSR: Corporations Supporting Recycling
Webb, Sarah (Assistant)	Aerosol Project Coordinator	CSR: Corporations Supporting Recycling

Curbside Optimization Task Group

Name	Title	Affiliation
Bacopoulos, Angelos Co-chair	General Manager, Solid Waste	City of Toronto
Kraus, Walter (Co-chair)	Vice President, Technical Support	S C Johnson & Son Ltd.
Bissell, Lorna	Regional Councillor	City of Brampton
Brooks, Brad	Recycling Coordinator	Miller Waste Systems
Butts, Richard	Director, Transfer Processing & Disposal	City of Toronto
Campbell, Andy	Manager, Engineering and Program	Region of Waterloo
Caverson, Dave	Coordinator, Environmental Services	Regional Municipality of Sudbury
Douglas, David	Environmental Specialist	Clorox
Dunn, Peter	Director, Waste Management	Region of Hamilton-Wentworth
Elliott, Jim	Manager, UBC Acquisitions & Logistics	Alcan Aluminum Corporation
Porteous-Koehle, Nancy	Government Relations Manager	Canadian Waste Services
Gouett, Michelle	Solid Waste Management Coordinator	County of Simcoe
Lackie, John	Chairman	Recycling Council of Ontario
Lambacher, Herb	President	HGC Management Inc.
Little, Mary	Plant Manager	Northumberland Recycling Group
Marshall, Bob	Vice President & General Manager	Ambaco Recycling Technologies
Nelson, Bob	General Manager	Atlantic Packaging
Schipper, Kees	Commissioner, Transportation & Works	Region of York
Stanford, Jay	Manager, Solid Waste	City of London
Veilleux, Francis	President	Bluewater Recycling Association
Watson, Peter	Manager, Waste Management	Region of Durham
Observers		
Cook, Rob	Executive Director	Ontario Waste Management Association
Rathbone, Geoff	Vice President, Market and Technical Development	CSR: Corporation Supporting Recycling
Love, Geoff (Secretary)	Vice President	Enviros RIS
Jeremy Tompkins Recording Secretary		CSR: Corporations Supporting Recycling

Organics Task Group

Name	Title	Affiliation
Banks, C. Mitchell (Co-chair)	Manager, Government Relations and Regulatory Affairs	Procter & Gamble Inc.
McNally, J. P. (Pat) (Co-chair)	Director, Solid Waste Division, Environment & Transportation Dept.	Regional Municipality of Ottawa-Carleton
Antler, Susan	Executive Director	The Composting Council of Canada
Blanchard, Paul	Executive Vice President	Canada Composting
Brown, Doug	Works & Operations Manager	Town of Marathon
Butts, Richard	Director, Transfer, Processing & Disposal	City of Toronto
Dance, Peter	Director, Operations	City of Orillia
Douglas, Dave	Environmental Specialist	The Clorox Company of Canada Inc.
Fasthuber, Otto	Vice President	Schaeffer
Forrestal, Brian	Vice President Landfill, Environmental Regulatory Affairs	Capital Environmental Resource Inc.
Johnson, Jeff	General Sales Manager	Joe Johnson Equipment
Laird, Janet	Manager, Solid Waste Services	City of Guelph
McArthur, Blair	Vice President	Miller Waste Systems
McCaig, Bob	President	Greenlane Environmental Group Ltd.
McConnell, Ron	Environmental Services Manager	City of Windsor
Sampson, Clayton	Waste Services Coordinator	City of Kingston
Scott, Jim	President	Gro Bark
Smith, John	Senior Waste Management Coordinator	Regional Municipality of Halton
Stewart, Scott	Director, Waste Management	Region of Peel
Tucker, Marvin	Compost Coordinator	Quinte Waste Solutions
	Observers	
Cook, Rob	Executive Director	Ontario Waste Management Association
Guglietti, Brad	Senior Environmental Policy Advisor	Ontario Ministry of the Environment
Kelleher, Maria (Secretary)	Director Residential Efficiency	Enviros RIS
Jeremy Tompkins Recording Secretary		CSR: Corporations Supporting Recycling

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WDO Guiding Principles For Development Of Long-Term Sustainable Funding Mechanisms For Municipal Waste Diversion and HSW Management Programs

August 9, 2000

Preamble:

These guiding principles are developed in accordance with Part IV "C" and "D" of the Memorandum of Understanding (MOU) setting out the goals and objectives of the Ontario Waste Diversion Organization. As such, they are intended to guide the development of long-term sustainable funding mechanisms to support municipal waste diversion programs.

Given that the parties to the MOU have confirmed their continued commitment to reduction, reuse, recycling and treatment of residential wastes (including organic and household special wastes) toward Ontario's goal of 50% waste diversion from disposal; and
given that a transition period is required to provide adequate time for:

- manufacturers to modify existing production and packaging practices
- elected officials to educate their constituents and to modify current waste management policies and practices
- manufacturers, municipalities and NGO's to educate consumers/residents to modify their product use and waste management practices
- development of appropriate infrastructure
- markets for recoverable materials to be strengthened

The following principles will guide the development of long-term sustainable funding mechanisms to support waste diversion and HSW management programs for an initial five-year period. It is intended that these guiding principles will be reviewed at that time. Issues to be taken into consideration when applying these principles to specific waste streams are noted.

Principle 1

A long-term, sustainable funding mechanism shall be structured to provide incentives for municipalities and industry to improve the environmental effectiveness and economic efficiency of waste diversion programs within the overall waste management system.

Municipalities shall have an incentive to optimize their programs through a process of continuous improvement and the use of market forces to encourage the adoption of best practices and lowest costs.

Industry, collectively, shall have an incentive to minimize resource use, to design for recyclability and to develop economic uses for recoverable materials.

Material Specific Issues to be considered:

Recycling
- taking into consideration these materials that can be recovered at least cost

Organics
- Role for industry less relevant to this waste stream

Household Special Waste
- Development of a criteria based HSW definition required
- Consumers need to be educated to modify their product use as well as their waste management practices

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Material Specific Issues to be considered:

Recycling

- taking into consideration these materials that can be recovered at least cost

Organics

- Role for industry less relevant to this waste stream

Household Special Waste

- Development of a criteria based HSW definition required
- Consumers need to be educated to modify their product use as well as their waste management practices

Principle 2

A long-term, sustainable funding mechanism shall encourage increased diversion of materials, towards the goal of 50% diversion from disposal, in a manner which is environmentally appropriate, cost effective and socially acceptable to each municipality.

Municipalities agree to put in place diversion programs and policies, including adequate financial arrangements, which encourage increased diversion of waste from disposal at the lowest environmental and economic cost.

Industry, collectively, agrees to provide its share of financial support for these programs in a manner which achieves increased recovery of those materials most appropriate to meeting the overall waste diversion goal of 50% at the lowest environmental and economic cost

Material Specific Issues to be considered:

Recycling
- Towards 50% diversion on a province-wide basis

Organics
- Maximum flexibility in approaches required in recognition of the regional diversity of the province

Household Special Waste
- Is less than 1% of residential waste
- First priority is to minimize such waste
- Second, provide for safe and efficient treatment
- Maximize diversion of the remainder

Principle 3

Financial responsibility for municipal waste diversion programs shall be shared among consumers, government and industry.

Municipalities shall retain the responsibility for providing efficient waste management programs, including waste diversion programs; for providing full and accurate accounting of the costs of these services; and for at least 50% of the net costs associated with the operation of these programs.

Industry, collectively, shall have a responsibility for up to 50% of the net costs of efficient residential materials recycling and HSW management programs; for providing adequate financial contributions; and have the opportunity to provide advice and additional support services to reduce these costs.

Material Specific Issues to be considered:

Recycling
- WDO funding allocation formula to be based upon agreed efficiency standards
- A portion of WDO funds to be allocated to reward/invest in improved program efficiencies
- Industry to retain control of the collection of their funds

Organics
- There is no direct link to industry responsibility for the significant majority of these wastes
- Costs for organic waste diversion are expected to fall largely to the public sector/generator

Household Special Waste
- Includes shared responsibility for educating consumers/residents to modify their product use and waste management practices
- Empty packaging to be managed within municipal recycling programs wherever possible

Principle 4

Municipalities and industry are each responsible for the design and implementation of programs to meet their responsibilities, including financial arrangements.

Municipalities shall be responsible for accurate measurement and reporting of the costs of waste diversion programs and for providing adequate financial support for their share of these costs, in a manner which is appropriate to their community.

Industry, collectively and under the auspices of the WDO, shall be responsible for the design, implementation and management of a support program that raises funds from participating companies on an equitable basis, in an administratively efficient manner, to provide sufficient financing to meet its agreed share of costs.

Material Specific Issues to be considered

Recycling

- Must include a level playing field for competing industry sectors

Organics

- Provincial support may be required to achieve 50% diversion goal

Household Special Waste

- Must include a level playing field for competing industry sectors

Principle 5

The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms, which may include regulation, to meet the goals and objectives of the WDO in a timely manner, to minimize free riders and to provide a level playing field for companies competing within industry sectors. These mechanisms must recognize the diversity of municipalities and industries in Ontario and allow for maximum flexibility in the design and implementation of the programs required to meet the objectives of the WDO. These mechanisms must not disadvantage Ontario industries.

The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms to ensure action on the part of municipalities and industry, and to provide a clear, predictable framework for WDO program planning and implementation.

Considerations

Recycling

- Industries which produce and distribute packaged consumer goods believe that a level playing field regulation is essential

Organics

- Provincial intervention will likely be required

Household Special Waste

- Level playing field regulation considered essential

Principle 2

A long-term, sustainable funding mechanism shall encourage increased diversion of materials, towards the goal of 50% diversion from disposal, in a manner which is environmentally appropriate, cost effective and socially acceptable to each municipality.

Municipalities agree to put in place diversion programs and policies, including adequate financial arrangements, which encourage increased diversion of waste from disposal at the lowest environmental and economic cost.

Industry, collectively, agrees to provide its share of financial support for these programs in a manner which achieves increased recovery of those materials most appropriate to meeting the overall waste diversion goal of 50% at the lowest environmental and economic cost

Material Specific Issues to be considered:

Recycling

- Towards 50% diversion on a province-wide basis

Organics

- Maximum flexibility in approaches required in recognition of the regional diversity of the province

Household Special Waste

- Is less than 1% of residential waste
- First priority is to minimize such waste
- Second, provide for safe and efficient treatment
- Maximize diversion of the remainder

Principle 3

Financial responsibility for municipal waste diversion programs shall be shared among consumers, government and industry.

Municipalities shall retain the responsibility for providing efficient waste management programs, including waste diversion programs; for providing full and accurate accounting of the costs of these services; and for at least 50% of the net costs associated with the operation of these programs.

Industry, collectively, shall have a responsibility for up to 50% of the net costs of efficient residential materials recycling and HSW management programs; for providing adequate financial contributions; and have the opportunity to provide advice and additional support services to reduce these costs.

Material Specific Issues to be considered:

Recycling

- WDO funding allocation formula to be based upon agreed efficiency standards
- A portion of WDO funds to be allocated to reward/invest in improved program efficiencies
- Industry to retain control of the collection of their funds

Organics

- There is no direct link to industry responsibility for the significant majority of these wastes
- Costs for organic waste diversion are expected to fall largely to the public sector/generator

Household Special Waste

- Includes shared responsibility for educating consumers/residents to modify their product use and waste management practices
- Empty packaging to be managed within municipal recycling programs wherever possible

Principle 4

Municipalities and Industry are each responsible for the design and implementation of programs to meet their responsibilities, including financial arrangements.

Municipalities shall be responsible for accurate measurement and reporting of the costs of waste diversion programs and for providing adequate financial support for their share of these costs, in a manner which is appropriate to their community.

Industry, collectively and under the auspices of the WDO, shall be responsible for the design, implementation and management of a support program that raises funds from participating companies on an equitable basis, in an administratively efficient manner, to provide sufficient financing to meet its agreed share of costs.

Material Specific Issues to be considered

Recycling
- Must include a level playing field for competing industry sectors

Organics
- Provincial support may be required to achieve 50% diversion goal

Household Special Waste
- Must include a level playing field for competing industry sectors

Principle 5

The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms, which may include regulation, to meet the goals and objectives of the WDO in a timely manner, to minimize free riders and to provide a level playing field for companies competing within industry sectors. These mechanisms must recognize the diversity of municipalities and industries in Ontario and allow for maximum flexibility in the design and implementation of the programs required to meet the objectives of the WDO. These mechanisms must not disadvantage Ontario industries.

The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms to ensure action on the part of municipalities and industry, and to provide a clear, predictable framework for WDO program planning and implementation.

Considerations

Recycling
- Industries which produce and distribute packaged consumer goods believe that a level playing field regulation is essential

Organics
- Provincial intervention will likely be required

Household Special Waste
- Level playing field regulation considered essential

WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

Programs Committee:
Curbside Recycling Optimization Task Group

Interim Five-Year Plan

To Increase Diversion Of Residential Recyclable Materials To Contribute To The Provincial 50% Diversion Objective

16 August 2000

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OPTIMIZATION TASK GROUP
INTERIM STRATEGIC PLAN

1.0 Introduction/Purpose of Optimization Strategy

The Optimization Task Group of the Waste Diversion Organization (WDO) Program Committee has been tasked with developing a strategy for the diversion of recyclable materials from the residential sector in Ontario that will contribute to the provincial goal of 50% waste diversion from landfill. To that end, three scenarios for the continued evolution of the recycling system in the province have been developed. The purpose of these scenarios is to examine the potential contributions of residential recycling against the target of diverting 1,000,000 tonnes/year from landfill in the province over the next 5 years. (Note – it is anticipated that the majority of this target would need to be achieved through the diversion of organics from the residential sector).

Three scenarios have been developed to estimate a range of possible tonnages in future residential recycling programs over the next 5 years.

- Scenario One – a "Current Momentum" scenario - projects Year 2005 recycling recovery at 787,000 tonnes based on current momentum. Under this scenario, a limited number of communities implement aggressive recycling programs while one-half of the multi-family units in the Toronto area are projected to achieve high recovery rates through mixed waste processing systems. This scenario represents modest growth of 20,000 tonnes each year to the year 2005 (from a baseline of 667,000 tonnes in 1999).

- Scenario Two - a "50% Diversion" scenario, in which annual residential recycling increases to 1.0 million tonnes in 2005. Extensive waste regulations (e.g. wide-spread implementation of municipal user pay programs and landfill bans) as well as significant changes to the waste management infrastructure - particularly for multi-family units - underpin the high household recovery rate forecasts in this scenario.

- Scenario Three – a "Middle Ground" scenario - assumes reasonably aggressive growth in annual recycling tonnage resulting in 880,000 tonnes collected in 2005. An intensive municipal approach to waste management resulting in increased average recovery rates with greater success in multi-family programs in the GTA are the key assumptions of this scenario.

The projected cost implications, the comparative impacts of newly recovered materials on the markets for key materials recovered as well as the technology and regulatory requirements of each of the scenarios are examined in this strategic plan.

2.0 Residential Recyclables Generation

2.1 Ontario Population and Household Break-down

In 1999, the population of Ontario was reported to be 11,513,000.[1] As shown in Table 2-1, there were approximately 4.23 million households in the province (1999 estimate). Of this total, approximately 71%, or 3.01 million, were single-family (SF) dwellings. The remaining 29% were multi-family (MF) units (e.g. apartment buildings and possibly townhouse complexes), estimated to be 1.22 million units.

Table 2-1 shows SF and MF household estimates for nine regions in the province for communities with a population greater than 5,000. The table also shows the number of households in small communities (defined as towns with a population less than 5,000) and two isolated areas (Northwest and Northeast Ontario). Based on these definitions, 80% of 1999 Ontario households were located in 'urban' communities (i.e. in a municipality with a population greater than 5,000 or in southern Ontario).

Table 2-1
Ontario Household Estimates for 1999

Region	Total HH	SF HH	MF HH
GTA	1,550,453	852,700	697,800
Hamilton - Niagara	465,355	372,300	93,100
Ottawa	418,406	355,600	62,800
Windsor - Sarnia	215,385	193,800	21,600
London	222,904	178,300	44,600
Muskoka - Kawarthas	137,496	137,500	-
NE Ontario	148,390	133,600	14,800
Kingston-Pembroke	140,722	126,600	14,100
Kitchener - Waterloo - Barrie	140,722	112,600	28,100
Stratford - Bruce Peninsula	86,141	77,500	8,600
NW Ontario	60,293	54,300	6,000
Small communities	651,700	418,200	233,500
Total	4,237,967	3,013,000	1,225,000
Exclude North and Small	**3,377,584**	**2,406,900**	**970,700**

Household projections for 2000 to 2005 are shown in Table 2-2. These projections are based on a planning estimate of 1% growth per annum for both SF and MF dwellings in the province. Based on this assumption, the provincial housing stock is projected to grow by 260,000 units in 2005.

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[1] Population and household estimates were developed using data from a directory published by the Association of Ontario Municipalities and Statistics Canada. A number of challenges were encountered in the preparation of these data, including the impact of amalgamation on municipal boundaries and the definition of communities under 5,000, Statistics Canada census data revisions and discrepancies between different sources.

Table 2-2
Housing Stock Projections 1999-2005

Year	SF HH	MF HH	Total
1999	3,013,000	1,225,000	4,238,000
2000	3,043,100	1,237,300	4,280,400
2001	3,073,500	1,249,700	4,323,200
2002	3,104,200	1,262,200	4,366,400
2003	3,135,200	1,274,800	4,410,000
2004	3,166,600	1,287,500	4,454,100
2005	3,198,300	1,300,400	4,498,700

2.2 Estimated Residential Recyclables Generation

In order to estimate generation rates for specific residential recyclable materials (by housing type as well), the total household stock was segregated into two groups: households with access to recycling in the province and households without recycling access. Best estimates available[2] indicate that 97% of SF households (2.922 million dwellings) had access to recycling in Ontario in 1999.[3] Sixty percent of MF households were recorded as having regular access to recycling (732,900 units).[4] Based on previous CSR research, the assumption was made that 90% of households with access to recycling regularly participate in using this service.

Table 2-3
Summary of Access to Recycling and Participation Estimates for 1999

HH Factors	SF HHs	MF HHs
1999 total HHs	3,013,000	1,225,000
Access Rate	97%	60%
HHs w/Access	2,922,600	732,900
Participation Rate	90%	90%
Participating HHs	2,630,300	660,000

Working from a sample of residential waste composition studies, a profile of provincial waste generation can be developed. Recycling data obtained from CSR and MOE sources were used to calculate recovery rates and capture rates on a household basis. With these figures, it is possible to estimate the amount of material recovered for recycling (or composting) and tonnages available for future recovery (i.e. through existing service provision and through future expanded services).
The results of this generation analysis are presented in Tables 2-4. Some highlights from these tables are worth noting:

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[2] Housing estimates based on CSR data.

[3] 97% is an estimate developed for 1998 and was assumed for 1999 housing data.

[4] The estimate of MF units served is based on data from the RCO. Total number of MF dwellings in the province is based on CSR data.

- Fibres represent the largest percentage of all recyclable materials generated. Fibres include newspapers, old corrugated containers (OCC) and other paper (e.g. boxboard and mixed fine papers). The generation of recyclable fibre material in 1999 was estimated to be approximately 955,000 tonnes, representing 67% of all recyclables generated in Ontario residential waste.
- The two next largest categories of residential recyclables generated by Ontario households are glass containers (about 184,900 tonnes in 1999) and plastics (180,000 tonnes of material of which 130,800 tonnes are "mixed" plastics).
- MF households generate about 23% of materials available for recycling from the residential sector (over 325,600 tonnes of materials).

Table 2-4
Ontario Residential Waste Generation – 1999

Material	**Generation Rates**		SF HHs	MF HHs	Total HHs
			3,013,000	1,225,000	4,238,000
	SF	MF	**Waste Generation (tonnes/year)**		
	kg/hh/yr	kg/hh/yr	1.10	0.635	
ONP	129.69	67.46	390,800	82,600	473,400
OCC	25.10	23.51	75,600	28,800	104,400
Other paper	94.15	76.10	283,700	93,200	376,900
Polycoat gable	2.16	2.35	6,500	2,900	9,400
Polycoat asceptic	0.65	0.64	2,000	800	2,800
Glass food	16.03	10.33	48,300	12,700	61,000
Glass beverage	33.11	19.68	99,800	24,100	123,900
Ferrous food	13.07	10.38	39,400	12,700	52,100
Ferrous beverage	3.14	1.06	9,500	1,300	10,800
Aluminum beverage	5.98	4.60	18,000	5,600	23,600
Aluminum other	1.66	2.00	5,000	2,500	7,500
PET	4.73	6.08	14,300	7,400	21,700
HDPE	6.93	5.35	20,900	6,600	27,500
Other plastic	28.66	36.26	86,400	44,400	130,800
Food	268.40	223.52	808,700	273,800	1,082,500
Yard waste	171.60	6.35	517,000	7,800	524,800
Other materials	294.94	139.33	888,700	170,700	1,059,400
Total	1100.0	635.0	3,314,600	777,900	4,092,500
Recyclables	365.1	265.8	1,100,200	325,600	1,425,800
Organics	440.0	229.9	1,325,700	281,600	1,607,300

2.3 Future Household and Waste Generation Estimates for Ontario in 2005

The projected amount of recyclable material generated by households in 2005 is based on several assumptions, as described below:

- The SF and MF housing stock will increase by 1% per annum.
- Average waste generation rates assumed for 1999 will remain constant (i.e. 1.1 tonnes/year for SF dwellings and 0.635 tonnes/year for MF households).

- The composition of residential waste assumed for 1999 will remain constant.

Based on these assumptions – and no other systemic changes - the amount of recyclable material generated will increase 6%, from 1.425 million tonnes in 1999 to 1.513 million tonnes in 2005.

3.0 Residential Recyclable Recovery Analysis

3.1 The Growth of the Curbside System in Ontario

In "early" days of curbside recycling in Ontario (i.e. from the mid-80s to the early 90s), the growth in tonnes recycled from the residential sector was primarily the result of the rapid growth in the opportunity to recycle. The list of materials that could be set out for recycling was initially standard – and not very extensive - in most parts of the province. As more curbside households were added to the system, the tonnes recovered increased proportionally. In 1987, approximately 1.7 million households had a Blue Box recycling 97,000 tonnes of material (representing 2.5% of the residential waste stream).[5] By 1992, approximately 3.0 million households had access to recycling services with recovery estimated to be 476,000 tonnes.[6] In 1987, the average household recovery rate was approximately 57 kg/hh/yr and by 1992, that rate had increased to 159 kg/hh/yr.

The second phase of growth – from the early to the mid-90s - came primarily from adding new materials (e.g. mixed waste papers, different grades of plastics, tetra and polycoat containers, etc.) and, to a degree at least in some parts of the province, adding new households – e.g. services to MF households. The total number of household served increased to 3.5 million while recovery tonnage grew to 532,000 tonnes in 1995. Average per household recovery rates decreased slightly in 1996 – compared to 1992 - to 152 kg/hh/yr, a reflection of the relatively poor level of success achieved in MF buildings that were added to the system.

The most recent phase of growth in the tonnes of materials diverted (i.e. mid-90s to the present) has come primarily from improving the performance of existing programs and from innovative high diversion programs. Recycling growth has been achieved through enhanced education and communication efforts and non-technical system changes (e.g. increased recovery through bag limits and user pay systems). Many of the "high performing" programs in the province are recovering over 200 kg/hh/yr with some as high as 270 kg/hh/yr (see Table 3-2 for details). New technical innovations, such as wet/dry systems and co-collection programs, to date have not resulted in widespread increases in diversion but hold the promise of increased recovery through greater refinement and operational experience.

Data for 1999 indicate that the average recovery rate for all households in Ontario is 182 kg/hh/yr. This is a blended average consisting of SF and MF households. The average SF recovery rate is 208 kg/hh/yr and 78 kg/hh/yr for MF dwellings.

The key question to be considered through this plan is where will the future growth in tonnages from the "dry stream" come from in Ontario over the next 5 years.

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[5] The Physical and Economic Dimensions of Municipal Solid waste Management in Ontario, MOE, November 1991, p.3-31 and 3-38.

[6] MOE Municipal 3Rs Factsheet, 1998.

3.2 Participation, Recovery and Capture

Analyzing the current (and potential growth of) residential recycling system in Ontario requires an understanding of four key concepts: recovery rate, capture rate, diversion rate and participation rate. Once a system is examined from these perspectives, potential sources of new material to be recovered can be identified both in the short and medium terms.

Recovery rate: the amount of material collected for recycling. This rate is typically measured as kilograms per household per year (kg/hh/yr) or kilograms per capita per year (kg/cap/yr). A recovery rate can be used to measure the amount of a single material collected (e.g. the average recovery rate for ONP in Ontario is 117 kg/hh/yr) or for all materials (e.g. the average curbside recovery rate in Ontario is 208 kg/hh/yr). In contrast, **diversion rates** estimate the amount of waste diverted as a percentage of generation.

Capture rate: always expressed as a percentage, this term describes the percent of material collected for recycling compared to total generation. For example, the average recovery rate of aluminum cans by Ontario curbside programs is 4.87 kg/hh/yr and the average generation rate is 5.98 kg/hh/yr. After taking participation into account, the average capture rate is 71%. This measure is useful because it can be used to estimate the amount of material left in the waste stream and therefore potentially available for collection in a recycling program.

Participation rate: always expressed as a percent, this term describes the percent of all households that set out materials for recycling during a given period. Typically, participation rates measure the number of households that set out recyclables at least one time per month.

Table 3-1
Ontario Residential Waste Diversion and Remaining Material (1999) [7]

Material	Diversion Rates		Diversion (tonnes) with 90% participation rate			Material Capture Rates			Remaining Material		
	97% SF kg/hh/yr	60% MF kg/hh/yr	SF tonnes 90%	MF tonnes 90%	**Total tonnes**	SF %	MF %	total %	SF tonnes	MF tonnes	Total tonnes
ONP	117.21	35.64	308,300	23,500	**331,800**	79%	28%	70%	82,500	59,100	141,600
OCC	13.02	9.59	34,300	6,300	**40,600**	45%	22%	39%	41,300	22,500	63,800
Other paper	35.74	13.22	94,000	8,700	**102,700**	33%	9%	27%	189,700	84,500	274,200
Polycoat gable	0.52	0.24	1,400	200	**1,600**	22%	7%	17%	5,100	2,700	7,800
Polycoat asceptic	0.07	0.01	200	10	**210**	10%	1%	8%	1,800	790	2,590
Glass food	11.45	6.07	30,100	4,000	**34,100**	62%	31%	56%	18,200	8,700	26,900
Glass beverage	28.70	12.86	75,500	8,500	**84,000**	76%	35%	68%	24,300	15,600	39,900
Ferrous food	9.42	3.22	24,800	2,100	**26,900**	63%	17%	52%	14,600	10,600	25,200
Ferrous beverage	2.85	0.46	7,500	300	**7,800**	79%	23%	72%	2,000	1,000	3,000
Aluminum beverags	4.87	1.44	12,800	900	**13,700**	71%	16%	58%	5,200	4,700	9,900
Aluminum other	0.24	0.18	600	100	**700**	12%	4%	9%	4,400	2,400	6,800
PET	3.00	2.32	7,900	1,500	**9,400**	55%	20%	43%	6,400	5,900	12,300
HDPE	2.83	1.00	7,400	700	**8,100**	35%	11%	29%	13,500	5,900	19,400
Other plastic	1.83	0.94	4,300	600	**4,900**	5%	1%	4%	82,100	43,800	125,900
Food	24.71	-	65,000	-	**65,000**	8%	0%	6%	743,700	273,800	1,017,500
Yard waste	121.66	-	320,000	-	**320,000**	62%	0%	61%	197,000	7,800	204,800
Other materials	-	-	-	-	-	0%	0%	0%	888,700	170,700	1,059,400
Total	377.9	87.2	994,000	57,000	**1,062,000**	30.0%	7.3%	26%	2,320,500	720,490	3,040,990
Recyclables	231.5	87.2	609,000	57,000	**667,000**	55.4%	17.5%	46.8%	491,100	268,190	759,290
Organics	146.4	0.0	385,000	0	**385,000**	29.0%	0.0%	24.0%	940,700	281,600	1,222,300

blended waste generation rate (kg/hh/yr)	965
blended recycling diversion rate for all households with access (kg/hh/yr)	182
diversion rate through recycling	16%
average recovery rate for all MF HHs with access to recycling (kg/hh/yr)	208
average recovery rate for all MF HHs with access to recycling (kg/hh/yr)	78

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[7] Data in this table come from CSR and Enviros RIS files and are intended to represent 1999 activity. Diversion rates are based on current waste flow. The question of historical versus current waste flow analyses were addressed in the Interim report to the Minister.

3.3. Opportunities to Recover New Materials

There are basically three main ways in which tonnages recycled can be increased:

1) Build on the performance of existing programs

An analysis of current capture and recovery rates for existing residential recycling programs – as presented in Table 3-1 - suggests that "pockets of opportunity" exist for improving recycling tonnage diversion from existing programs.

- The estimated current recovery rate within MF households (78 kg/hh/yr) is about one-third that of SF households (208 kg/hh/yr). Because of smaller family size in MF households, the generation rate is also about 35% less; however inconvenience is also a major contributing factor to lower recovery. Improving the performance of existing MF recycling programs is a priority if increased diversion is to be achieved. Currently, MF dwellings capture about 19% of recyclables generated in those households compared to 55% by SF householders.

- Within SF households, the most notable opportunity in terms of tonnage potential is OCC and other paper. The current capture rates for these materials in the SF household sector are 45% and 33% respectively, representing over 231,000 tonnes of uncollected recyclable OCC and other paper. The estimated market value of uncollected OCC and other paper from SF sources is $22 million; an additional $10 million in potential revenue is lost from uncollected OCC and other paper generated in the MF sector.[8] By contrast, some materials – ONP in particular - have achieved a 79%+ capture rate in the SF sector and show little opportunity for future growth.

- From a municipal revenue perspective, the main opportunity is aluminum packaging. While beverage container recovery from SF households remains high (about 71%), it is estimated that over 17,000 tonnes of aluminum packaging was still discarded from all Ontario SF and MF households in 1999, representing lost potential revenue of $31 million per year.[9] Other sources of potential revenue for material with relatively low capture rates include PET ($3.5 million)[10] and HDPE ($5.9 million).[11]

2) Move towards "higher performing/higher diversion" systems

Across the province, the average recovery for all households in 1999 was estimated to be 182 kg/hh/yr, which represents a 16% diversion rate when compared against a blended average household waste generation rate of 965 kg/hh/yr. The estimate of 182 kg/hh/yr is a blended number that combines SF recovery (208 kg/hh/yr) from conventional Blue Box/ blue bag systems and MF programs (78 kg/hh/yr). Across the province, there are a number of standout programs. As shown in Table 3-2, ten of the "high performing" programs in Ontario (representing 1.5 million households, or one-third of the provincial housing stock) achieved an average recovery rate of 205 kg/hh/yr in 1999, which is approximately 15% higher that the provincial average.

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[8] Based on CSR May 2000 market price of $150/tonne FOB the municipality for OCC and $85/tonne FOB the municipality for residential mixed paper. $33 million estimate assumes 100% of fibres are marketed.

[9] Based on CSR May 2000 market price of $1,896/tonne FOB the municipality. $31 million estimate assumes 100% of the aluminum beverage containers and other aluminum waste not currently captured in residential recycling programs is marketed.

[10] Assuming all PET not currently recovered is collected and marketed at CSR's July/00 published price of $278/tonne FOB the municipality.

[11] Assuming all HDPE not currently recovered is collected and marketed at CSR's July/00 published price of $305/tonne FOB the municipality.

Table 3-2
Ten of Ontario's High Performing Recycling Programs

Community	Recovery Rate kg/hh/yr	Composting Rate kg/hh/yr	Average Waste Generation Rate kg/hh/yr	Diversion Rate through Recycling	Diversion Rate through Recycling and Composting	Population
1. Markham	270	186	990	27%	46%	162,500
2. Barrie	238	153	1,320	18%	30%	93,000
3. Peterborough	235	114	750	31%	47%	72,000
4. Caledon	226	159	1,120	20%	34%	45500
5. RMOC	211	n/a	1,000	21%	n/a	760,000
6. Northumberland	211	13	680	31%	33%	79,100
7. Quinte	210	132	810	26%	42%	67,800
8. Georgina [12]	175	n/a	816	21%	n/a	32,650
9. Toronto	145	100	1,133	13%	22%	2,400,000
10. Essex-Windsor	131	132	946	14%	28%	352,300
Average	205	124	957	21%	34%	

Several technical/system innovations have been successfully introduced in Ontario over the past five years (and some of the "lower tech" high diversion programs have been in place for over a decade). In examining the characteristics of some of the "high performing" programs in the province, a few notable trends can be identified:

- "high performers" tend to have moved towards a more integrated approach to waste diversion - i.e. including organics diversion, special waste programs/days, material recovery from public spaces;
- many of the programs have incorporated innovative technologies - e.g. wet/dry processing systems; co-collection vehicles; automated chutes for high-rise buildings;
- "high performers" tend to have established and maintained on-going communication and education programs;
- most of these programs include bag limits and/or other user pay measures.

The 1999 average per household recovery rate for nine of the top curbside programs in the province was 213 kg/hh/yr, approximately 17% higher than the current provincial average. If this level of performance were achieved in the year 2005 (assuming a straight-line growth rate between 2000 and 2005 and a blended average between SF and MF dwellings), total recyclables recovered is projected to be approximately 880,000 tonnes. This level of performance would represent a

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[12] The average waste generation rate for Georgina was not available from this municipality. For planning purposes, this estimate was calculated as the average of the top rural programs.

243,000 tonne increase compared to 1999, and is essentially the recycling level projected in the "Middle Ground" scenario as described below.

3) Reward Diversion

Perhaps the most successful recycling program development in the province has been the evolution of bag limits on disposal and user pay programs. The "user pay" approach to support recycling is simple to understand, but often difficult to implement. User pay has several variable approaches, but the essential idea is that a household pays for the cost of disposal in proportion to the amount of waste generated (i.e. on a per bag or per container basis). User pay helps to drive diversion when the opportunity to recycle (and/or compost) is well developed.

Of the high performing programs listed in Table 3-2, seven have some form of bag limit or user pay system: Markham (3 bag limit); Barrie (2 bag limit and bag tag); Peterborough (2 bag limit); RMOC (5 bag limit); Northumberland (bag tags for wet materials); Quinte (user pay); and Georgina (user pay).

As of early 2000, approximately 106 municipal programs – covering 500,000 households and 1.1 million people (approximately 10% of the province's 11.5 million population) - had bag limits or user pay systems in place in Ontario. Approximately 45 programs have been implemented since 1997. To date, small to mid-size communities have been the focus of user pay/bag limit programs, with St. Catherines (population 131,000) the largest to date.

While this is still a somewhat politically charged issue, the evidence indicates that any attempt to achieve "order of magnitude" increases in residential waste diversion in Ontario would require some form of landfill disposal bans to regulate diversion and/or user pay system to reward maximum recycling.[13] For example, data from the Georgina and Orillia programs indicate the impact of user fees as follows:

- **Georgina**: 40% reduction in the weight of garbage disposed and a 42% increase in the amount of recyclables collected in the blue box program. (Data collected one year after the implementation of the user pay program).

- **Orillia**: After the first year of operation, garbage disposal was down 28% and Blue Box up 22%; sales of composters increased from 250/year to 1,100/year.

AMRC and CSR research suggests the following broad impacts on waste diversion rates:

- Full user pay with no free bags: increase diversion by 30-50%
- Partial user pay with 1 free bag: increase diversion by 25-35%
- Partial user pay with 2 free bags: increase diversion by 15-25%
- Partial user pay with 3+ free bags: increase diversion by 5% of less.

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[13] The potential diversion impact of user pay programs is thought to be more significant on the organics stream than dry recyclables. The advantages and disadvantages of user pay programs were addressed in the interim report to the Minister and will be addressed in the final report.

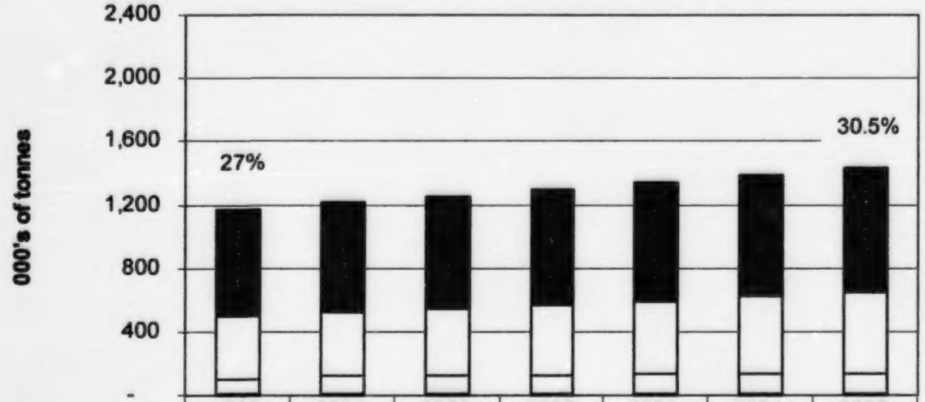
In summary, the three most likely sources for future recycling tonnage growth in Ontario would appear to be a combination of three factors: enhanced performance of existing systems (i.e. improving capture and recovery); adding new programs/systems (e.g. effective multi-family systems, wet/dry systems) and rewarding diversion effectiveness (e.g. through user pay). Each of these opportunities is examined in some detail in the next sections of this plan.

3.4 2005 Recycling Scenarios

3.4.1 Current Momentum Scenario – Description and Assumptions

As shown in Figure 1, the Year 2005 target for this scenario is 787,000 tonnes of recyclables from the residential sector. Figure 1 also projects parallel growth in organics and household special waste (HSW). This level of activity represents an 18% increase - or 120,000 tonnes - compared to the 667,000 tonnes collected in 1999. Between 1999 and 2005, average annual growth is projected to be 20,000 tonnes per year.

Figure 1
Current Momentum Scenario Diversion Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	687	707	727	747	767	787
□ Organics	393	403	421	434	460	488	503
□ Bulky Recycling	100	116	119	122	125	128	131
□ HSW	6	7	7	8	9	9	10

This recovery target is based on the assumption that the existing recycling system will continue to evolve over the next five years with some level of innovation but in a minority of communities. Generally, this scenario assumes limited growth in three stream separation systems for SF households and partial provision of mixed waste processing services to Toronto MF units. Key variables for change over the next five years necessary to reach the Scenario 1 recovery target are listed in Table 3-3 with a description of the broad program assumptions underlying the year 2005 recovery target provided below.

- ☐ The total number of MF households with access to recycling services will increase to 80% in 2005 through the expansion of existing programs or introduction of new services (e.g. mandatory recycling services in MF buildings with private collection services).
- ☐ The number of SF households with access to recycling services will increase from 97% in 1999 to 100% in 2005 (excluding the northern regions of the province).
- ☐ By 2005, 500,000 SF households will be provided with a three-stream collection system and will achieve an 80% capture rate for an average recovery rate of 286 kg/hh/yr.
- ☐ The remaining 2.5 million SF households will achieve an average recovery rate of 218 kg/hh/yr, a 5% increase compared to the 1999 rate. At 218 kg/hh/yr, the year 2005 projected average SF recovery rate would roughly fall in the middle of the current list of 10 high performing programs (as listed in Table 3-2).
- ☐ Approximately 50% of Toronto MF units (225,000 dwellings) will be served with a mixed waste processing system resulting in an average recovery rate of 160 kg/hh/yr.
- ☐ Recovery rates in the remaining MF households in the province with access to recycling services would remain constant.

Table 3-3
Scenario 1 Key Variables

Item	1999 Figures	2005 Estimates
SF households with access	2,922,600	2,999,000 *
MF households with access	732,900	1,022,400 *
Average SF Recovery Rate	208 kg/hh/yr	218-286 kg/hh/yr
Average MF Recovery Rate	78 kg/hh/yr	78-160 kg/hh/yr
Blended Household Diversion Rate **	182 kg/hh/yr	215 kg/hh/yr
Estimated Residential Waste Diversion Rate	16%	19%

* Note: For the purpose of calculating future amounts of tonnes recycled, 2005 estimates for households with access to recycling do not include the Northeast and Northwest regions of the province.

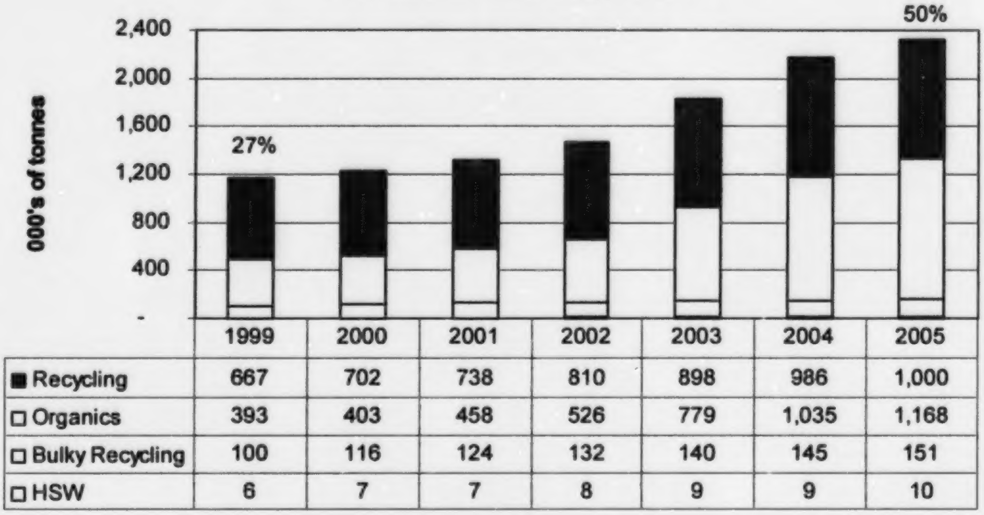
** The blended household recovery rate was calculated as the total number of tonnes recycled (SF and MF combined) divided by the total number of SF and MF household with access to recycling services.

3.4.2 50% Diversion Scenario – Description and Key Assumptions

As shown in Figure 2, the target for 2005 for this scenario is 1.0 million tonnes of recyclables from SF and MF households. Figure 2 also illustrates the annual growth required to get to 50% diversion, and the comparative contribution needed from organics diversion. The achievement of this target would represent a 50% increase - or 333,000 tonnes - compared to the 667,000 tonnes collected in 1999.

In order to reach the 1.0 million tonne diversion target, a considerable increase in recovery rates compared to existing levels would be required. As shown in Table 3-4, the number of MF units served would have to increase 24% to 1.1 million dwellings, which is 90% of the projected year 2005 MF household stock. Given that a significant percentage of MF dwellings are serviced by private contractors, measures would likely need to be taken to ensure the provision of recycling services to these dwellings. Average blended household recovery rates would need to increase in the order of 50%.

Figure 2
50% Diversion Scenario Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	702	738	810	898	986	1,000
□ Organics	393	403	458	526	779	1,035	1,168
□ Bulky Recycling	100	116	124	132	140	145	151
□ HSW	6	7	7	8	9	9	10

In particular, the blended household recovery rate for the entire province would have to increase to a level that compares with rates currently achieved by a small number of high performing programs. If these levels of performance were to be achieved, province-wide bag limits and user fees would be needed.

Table 3-4
50% Diversion Scenario Key Variables

Item	1999 Figures	2005 Estimates
SF households with access	2,922,600	2,999,000 *
MF households with access	732,900	1,150,000 *
Average SF Recovery Rate	208 kg/hh/yr	304 kg/hh/yr
Average MF Recovery Rate	78 kg/hh/yr	71-167 kg/hh/yr
Blended Household Diversion Rate **	182 kg/hh/yr	249 kg/hh/yr
Estimated Residential Waste Diversion Rate	16%	25%

* Note: For the purpose of calculating future amounts of tonnes recycled, 2005 estimates for households with access to recycling do not include the Northeast and Northwest regions of the province.

** The blended household recovery rate was calculated as the total number of tonnes recycled (SF and MF combined) divided by the total number of SF and MF household with access to recycling services.

Key program assumptions underpinning the year 2005 recovery target are described below.

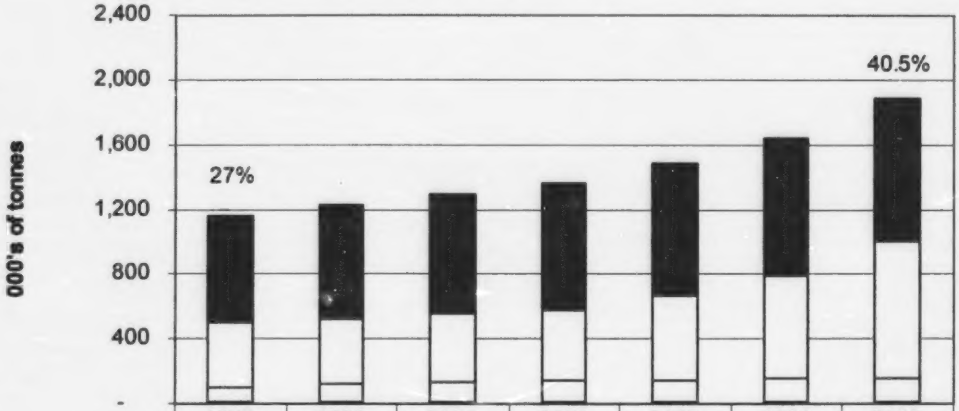
- As a whole, SF households would need to achieve an average capture rate of 85% for all recyclables generated for an average recovery rate of 304 kg/hh/yr.
- It was assumed that 98% of all Toronto MF households would be provided with a level of service that could capture 70% of all recyclables generated for an average recovery rate of 167 kg/hh/yr.
- The majority of the remaining MF households in the province were assumed to capture 30% of recyclables generated for an average recovery rate of 71 kg/hh/yr.
- In total, 90% of all MF households in the province would be provided with access to convenient on-site/neighborhood recycling services.

3.4.3 Middle Ground Recovery Scenario – Description and Analysis

As shown in Figure 3, the year 2005 recycling target for this scenario is 880,000 tonnes. This level of performance represents a 32% increase - or 213,000 tonnes - compared to the 667,000 tonnes collected in 1999.

The 880,000 tonne recovery target requires an expansion of service to MF households (along with improved recovery rates) and an increase of SF recovery rates to a range that is now achieved by top performing programs across the province. It also anticipates limited implementation of an intensive 2 or 3-stream system and an increase in the number of user pay programs in the province.

Figure 3
Middle Ground Scenario Diversion Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	702	738	773	809	844	880
□ Organics	393	403	423	444	524	638	845
□ Bulky Recycling	100	116	124	132	140	145	151
□ HSW	6	7	7	8	9	9	10

Table 3-5
Scenario 3 Key Variables

Item	1999 Figures	2005 Estimates
SF households with access	2,922,600	2,942,000 *
MF households with access	732,900	1,150,000*
Average SF Recovery Rate	208 kg/hh/yr	242-312 kg/hh/yr
Average MF Recovery Rate	78 kg/hh/yr	80-187 kg/hh/yr
Blended Household Diversion Rate **	182 kg/hh/yr	215 kg/hh/yr
Estimated Residential Waste Diversion Rate	16%	21%

* Note: For the purpose of calculating future amounts of tonnes recycled, 2005 estimates for households with access to recycling do not include the Northeast and Northwest regions of the province.

** The blended household recovery rate was calculated as the total number of tonnes recycled (SF and MF combined) divided by the total number of SF and MF household with access to recycling services.

Key variables for the Middle Ground scenario are listed in Table 3-5 with a description of the important program assumptions underpinning the year 2005 recovery target provided below.

- Three levels of SF recovery rates are assumed. A limited number of households (e.g. approximately 165,000) will capture 80% of recyclables generated for an average recovery rate of 286 kg/hh/yr.
- Approximately 1.7 million SF households will increase recovery rates to 268 kg/hh/yr. This level of performance is on par with top programs currently operating in the province.
- Approximately 1.1 million SF households will increase recovery rates by 5% to 235 kg/hh/yr.
- The treatment of multi-family units is the same as that described in Scenario 2: 98% of all Toronto MF households would be provided with a level of service that could capture 70% of all recyclables generated for an average recovery rate of 167 kg/hh/yr. The majority of the remaining MF households in the province were assumed to capture 30% of recyclables generated for an average recovery rate of 71 kg/hh/yr.

3.5 Recycling System Cost Estimates

3.5.1 Key Cost Factors – 1999 Cost Calculations

Two key sets of cost factors determine the estimated cost of recycling: the gross cost of the service (i.e. including collection and processing) and the revenues from the sale of materials (commonly called the "basket of goods" in curbside programs). One of the important tasks in the WDO process has been to undertake the necessary research to more accurately determine the current cost of recycling in the province.

Table 3-6
Ontario-Wide 1999 Recycling Costs

Area	% of tonnes	Net Cost/tonne	Notes
Large Urban (CAO)	58%	$84	Capital and administration included
Multi-Family (RCO)	10.2%	$80	Capital and administration included
Small-Rural (AMRC)	3.0%	$242	Most capital not included
Total/Average	100%	$99	

The data presented in Table 3-6 are based on municipal reports representing 98% of 1999 municipal tonnes reported and 72% of municipal costs reported. This research was undertaken in the spring of 2000 through a co-operative effort between the WDO and the CAO (Chief Operating Officers) Benchmarking initiative and has produced results which are more inclusive of municipal capital and administrative costs than previous reports have generally provided.

As shown in Table 3-6, the net blended basket of goods cost of collecting, processing and marketing recyclables in 1999 was estimated to be $99/tonne. This net cost estimate includes revenue, operating costs, the amortized cost of capital replacement and a blended range of costs observed in small and rural communities, mid-size towns and large urban centres. Assuming 1999 recovery at 667,000 tonnes, municipalities across the province spent approximately $66.0 million on recycling programs, as summarized in Table 3-6.

3.5.2 Future Cost Scenarios [14]

Future costs of recycling will depend on the gross cost of collection and processing as well as the value of the "basket of goods" revenue. Since 1997, the basket of goods revenue has remained constant and shows a slight upward trend. Combined with stable gross collection and processing costs, the net cost of recycling is expected to decline slowly over the next five years. It should be noted however that the municipal revenue estimates used for 1999 calculations do not fully capture the stronger commodity value in the current market (i.e. where contractor's revenue share could be as much as 100%). Thus, the municipally reported basket of goods value may be lower than current actual market value (e.g. because of contract terms).

Table 3-7 projects gross, net and system cost estimates for the period 1999-2001. Figures 4 and 5 present the future cost scenarios both in terms of costs per tonne (Figure 4) and total system cost (Figure 5).

Table 3-7
Projected Recycling Costs

Item	1999	2000	2001
Gross Collection/Processing	$187/tonne	$187/tonne	$185/tonne
Revenue	($88)/tonne	($128)/tonne	($131)/tonne
Net Cost	$99/tonne	$59/tonne	$54/tonne
Tonnes	667,000	702,000	738,000
System Cost	$66.0 million	$41.4 million	$40.5 million

As shown in Table 3-7, Year 2000 net recycling costs are expected to drop to $59/tonne due, in part, to stable collection and processing costs combined with rising revenue streams. For similar reasons, projections for 2001 suggest that recycling costs will continue to decline (though it is recognized that cyclical markets could drive prices to levels that vary significantly from our projections.) Assuming recovery at 702,000 tonnes, Year 2000 expenditures on residential recyclables is estimated to be $41.4 million. In 2001, total expenditures are expected to decline slightly to $40.5 million.

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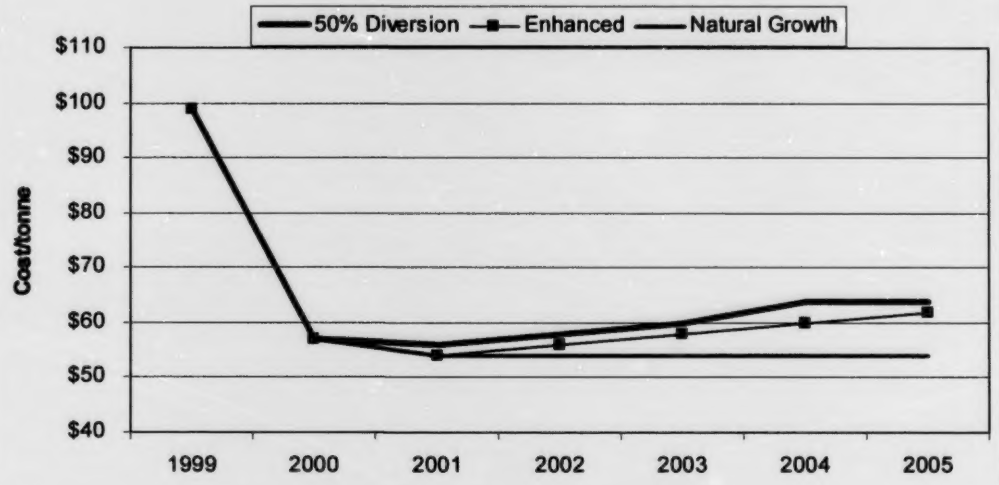
[14] All future cost estimates are in year 2000 dollars.

As shown in Figure 4, three sets of net costs were developed for Year 2005. The 50% diversion scenario cost estimate - $64/tonne - is highest among the three, based on the high cost of anticipated capitalization and increased recovery of low-revenue materials.

Figure 4
Recycling Costs per Tonne

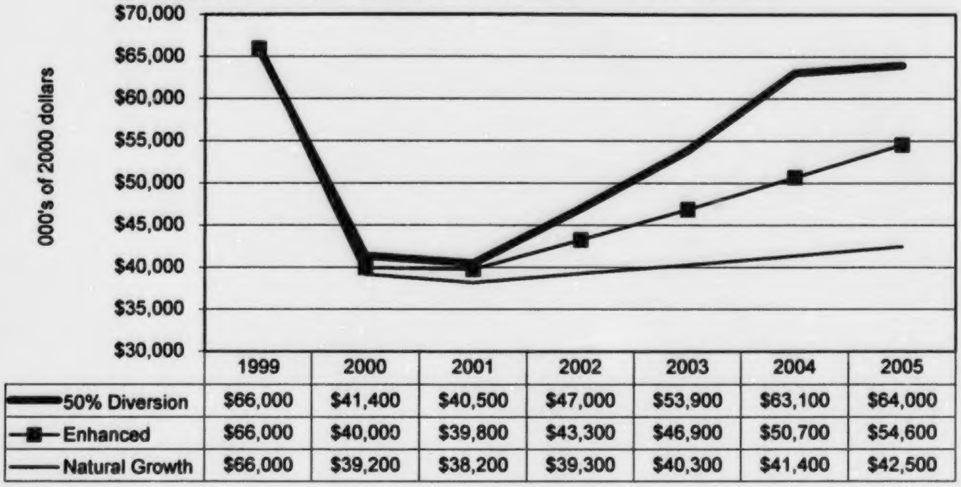


With recovery projected at 1.0 million tonnes, expenditures in 2005 are estimated to be $64.0 million, as shown in Figure 5. For the Current Momentum scenario, the average blended net cost of recycling in 2001 is projected to be $54/tonne and - owing to slightly higher revenue streams and projected lower collection and processing costs - is expected to remain constant through 2005. With 787,000 tonnes projected for collection in 2005 - annual expenditures are estimated to be $42.5 million.

Currently, the province-wide average cost of collecting, transferring and disposing of curbside garbage is estimated to be between $80 and $100/tonne. The cost for multi-family dwellings is in the range of $35 to $55/tonne. Assuming 2% inflation per annum, the Year 2005 cost range of garbage disposal is estimated to be $100/tonne and $50/tonne for curbside and multi-family respectively.

Based on these figures and the assumptions noted earlier, the Year 2005 cost of recycling curbside recyclables is expected to be less than the cost of treating this residential material as garbage. In contrast, the net cost of recycling material from multi-family dwellings is expected to be higher than the cost of garbage disposal.

Figure 5
Projected Recycling Costs for Three Scenarios:1999-2005



	1999	2000	2001	2002	2003	2004	2005
50% Diversion	$66,000	$41,400	$40,500	$47,000	$53,900	$63,100	$64,000
Enhanced	$66,000	$40,000	$39,800	$43,300	$46,900	$50,700	$54,600
Natural Growth	$66,000	$39,200	$38,200	$39,300	$40,300	$41,400	$42,500

4.0 Key Recycling Issues in Ontario to be Resolved

The residential recycling system in Ontario has grown considerably over the past 15 years. The next five years are full of significant opportunities, but also challenges. This section of the report summarizes four of the key challenges to be addressed.

i) Optimizing the provincial network of Materials Recycling Facilities (MRFs)

There are more than 60 facilities in the province that process dry recyclable materials collected from curbside programs. Some of the facilities serve comparatively large regions and process several thousand tonnes of material each year. Others are quite small and operate only on a part time basis as sufficient material is collected for processing (e.g. in parts of Northern Ontario). In addition some facilities process both residential recyclables and materials collected from industrial, commercial and institutional sources. Two fundamental questions over the next 5 years are: is new capacity required to process the additional materials that will be collected in the future and, how can the processing system be optimized in terms of cost effectiveness? WDO is conducting research on how MRF operations can be improved (e.g. regionalized processing facilities) and is examining more cost effective ways to transport collected materials, particularly in rural areas.

ii) Multi-family recycling

A critical challenge in terms of the future growth of the recycling system in the province is increasing recovery from the MF sector. As noted earlier, almost 30% of households in the province are multi-family. Two specific issues are: how to improve the performance of existing MF recycling programs and how to add new programs, through public or private sector systems, in a way that is both cost effective and high performing. Retrofit systems can be added to existing buildings (i.e. chute systems for recyclables), but generally have high capital costs. Some municipalities require new high-rise buildings to provide the opportunity to recycle in a form that is as convenient as the disposal system. Adding the MF sector to the provincial recycling system in a way that is cost effective and high performing is the next stage of evolution in the province's dry recycling system.

iii) Market Development

All of the recycling growth scenarios include the addition of quantities of new materials. Two of the key materials are mixed residential fibres and household plastics. Mixed fibres are especially important because there is an opportunity to increase the recovery of these materials from the residential sector (whereas ONP, by contrast, has little room for new growth because capture rates – at least from single family households - are already high). Traditionally, markets for mixed residential fibres have gone "soft" as the economy slows. Since mixed fibres will be such an important part of new growth in recycling, stabilizing markets for these materials will be especially important in the future.

The other anticipated growth area is mixed plastics. As plastics replace traditional materials (such as glass and steel) in the packaging stream, the overall weight of packaging declines, but some of these materials are expensive to recover through recycling. WDO is working this year with the plastics industry in Ontario to prepare a market development strategy for plastics.

Continued (and stable) growth in the value of the "basket of goods" collected in recycling programs is fundamental to reducing total system costs.

iv) Integrating Recyclables, Organics and Special Waste Diversion

This is another core challenge for the Ontario waste diversion system. The recycling infrastructure is well established and can be grown. But a key issue will be to link this growth especially with the growth of new and improved organics collection systems. Ontario has already been an innovator in the development of co-collection systems (i.e. the collection of recyclables with organics and/or with regular household garbage). It can be anticipated that the next stage of system growth will need to continue to experiment with and adopt cost-effective ways of better integrating diversion systems (including appropriate special household wastes as well). A related area of interest for WDO is the examination of not only the potential economic efficiencies of more integrated waste management systems, but also the environmental benefits (including for example reductions in greenhouse gases from the increased use of recycled materials).

WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

Programs Committee: Organics Task Group

Interim Five-Year Plan

To Increase Diversion Of Residential Organic Waste To Contribute To The Provincial 50% Diversion Objective

16 August, 2000

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EXECUTIVE SUMMARY

Backyard composting and leaf and yard waste collection programs are well developed in Ontario at this time, and together divert an estimated 393,000 tonnes/year (281,000 tonnes curbside collection and 112,000 tonnes through backyard composters). A handful of communities have comprehensive organics collection programs (Guelph, St. Thomas, Caledon, etc.) which divert up to three times the amount of organics per household than other programs. Many Ontario communities have evaluated comprehensive organics collection programs, but have not proceeded.

The benefits of organic waste diversion include conservation of valuable landfill capacity, a reduction of acid generation in landfills and therefore metal precipitation in landfill leachate, reduced greenhouse gas production and conservation of organic material which can be used as a soil conditioner.

The Memorandum of Understanding (MOU) for the Waste Diversion Organization tasked the Organics Task Group to look at options to reach 50% diversion. The work of the Organics Task Group estimated that about 1.17 million tonnes/year of residential organic material, or 775,000 tonnes/year more than the current diversion levels would need to be diverted to achieve a 50% overall diversion target.

Recovery of an additional 775,000 tonnes/year of residential organic material would require 2.5 million single-family households, or virtually all urban single-family households in Ontario, including Northern Ontario, to implement comprehensive curbside organics programs. In addition, waste from half of the multi-family households in the Province would have to be processed in mixed waste processing facilities to recover the additional organics required to meet the target. This is not considered a realistic target within a five-year timeframe, given the timing of current contracts in the province, as well as the time required to site composting facilities which can handle residential food waste, obtain a Certificate of Approval, and award the contracts required.

Current composting capacity for source separated organic waste in Ontario is about 519,300 tonnes/year, of which 275,000 tonnes/year is already used by the municipal sector, and some of the remaining 244,300 tonnes is already used by the IC&I sector. An estimated capital cost of $240 million is involved to add the capacity required to process the 600,000 tonnes/year of additional source separated organic material which would be recovered from single-family households.

In addition, a substantial amount of organic waste from multi-family households is not readily amenable to source separation, and is not readily available for recovery, except through mixed waste processing. The capital cost of the facilities required to handle this component of the organics waste stream is estimated at $190 million.

The overall system costs to handle 1.1 million tonnes of organic waste are estimated at about $179 million per year (including amortized capital), which is an increment of $89 million more than the current system.

A more realistic, but still very aggressive strategy would involve diverting a total of 845,000 tonnes/year of organics, or about 452,000 tonnes/year above existing levels. This would involve roll-out of comprehensive curbside organics collection to 2 million single family households and mixed waste processing of garbage from 275,000 multi-family households, with all remaining households in the Province diverting organic waste through a combination of backyard composting and leaf and yard waste recovery. This strategy is considered feasible within a five-year timeframe, if the appropriate legislative and financial supports are in place.

The costs of the alternate strategy are currently estimated at $59 million/year more than the status quo, or what is currently expended on management of the organic portion of the waste stream. These estimates can be refined when results of WDO supported research are available.

Municipalities are not willing to bear the additional $59 million/year cost, as the benefits of diverting 50% of the waste stream, particularly if it costs more, are not clear. In addition, municipalities feel that if the province wants to divert 50% of waste, it should pay the incremental cost. The Province provided significant start-up assistance, and on-going operating cost assistance to municipalities for five years, to get the recycling system off the ground, and the suggestion has been made that the province consider the same support for organics.

The Organics Task Group has identified the need for both start-up capital funding, to "prime the pump" and get the organics system infrastructure in place, and also assistance with on-going operating costs, to make the net costs of organics comparable to handling the same waste stream as garbage. Without financial assistance, Ontario municipalities will not move forward on implementing organics diversion programs in the current climate of fiscal restraint.

The Organics Task Group recognizes the difficulty of constructing a funding formula for organics diversion programs. About one-third of the organics waste stream is leaf and yard waste, for which there is no clear brandowner. An additional half consists of food waste (about 70% of the food in the waste stream is considered difficult to identify with a specific brandowner). The remaining 16% is compostable papers. Brandowners can be identified for the paper materials in the organics stream, but they are not a large component of this waste stream.

Landfill bans on organics are seen as a necessary element of a strategy to divert significant quantities of organic material from disposal. Private sector companies who own and operate landfills have expressed serious concerns about the enforceability of landfill bans. They feel that enforcement will be difficult and needs to occur at the curb. This complicates and slows down the collection process, thereby increasing collection costs.

Regionally appropriate landfill bans on leaf and yard waste, followed by a later ban on all organic waste may be an appropriate roll-out strategy. User pay is seen as an effective policy to increase participation in source separation programs for organics, but Provincially mandated user pay programs are not supported.

Market development for compost products is critical to the success of any organics diversion strategy, to ensure that the product can be put to its highest and best use, and that stable and high revenues can be secured from the sale of the end product. Standards and quality control will improve consumer confidence in the compost product, and will increase the value of compost.

1.0 INTRODUCTION

The purpose of the Waste Diversion Organization (WDO) as set out in the Memorandum of Understanding (MOU) is to identify methods by which 50% diversion can be achieved (including the costs involved), and prepare recommendations with respect to the design of longer term funding arrangements for waste diversion. (Part 2, Section 1).

Part IV of the MOU states the role of the WDO with respect to organic waste diversion to be:

To expend up to $2 million towards the advancement of organic waste diversion, in particular:

- *$50,000 in support of educational programs encouraging organic waste diversion, including support for International Composting Awareness week; and*
- *up to $1,950,000 for the development and implementation of a program to assist municipalities with 50% of the cost of developing and establishing organic waste diversion systems, such as centralized composting facilities and organic digestion facilities. Eligible capital costs shall include planning, design, engineering, construction and equipment costs for such facilities.*

Part IV (D) (a) (ii) states one of the roles of the WDO is to develop options for a long term sustainable funding formula prescribing appropriate levels of annual contribution and appropriate sources of contribution for long term continuation of funding *for the future continuation of the programs set out in Part IV "C"* (organics, HHW and recycling*). Estimates of the necessary totals for the five ensuing years shall be provided along with an evaluation of the trends thereafter.*

The Organics Task Group of the Waste Diversion Organization (WDO) Programs Committee were tasked with developing a strategy to divert an additional 700,000 to 1 million tonnes of organic waste from residential sources, in order to reach the 50% goal stated in the MOU. The Organics Task Group were also directed to provide input to the Funding and Regulations Committee on the funding options and regulatory requirements necessary to achieve the 50% goal.

The benefits of organic waste diversion include conservation of valuable landfill capacity, a reduction of acid generation in landfills and therefore metal precipitation in landfill leachate, reduced greenhouse gas production and conservation of organic material which can be used as a soil conditioner.

The strategy developed by the Organics Task Group (OTG) to divert significant amounts of residential organic waste is presented in this document, along with a summary of discussions regarding a sustainable funding formula, and regulatory options which would be required to meet this goal.

2.0 RESIDENTIAL ORGANIC WASTE GENERATED IN ONTARIO

2.1 Ontario Population and Household Breakdown

In 1999, the population of Ontario was reported to be 11,513,000. As shown in Table 2-1, there were approximately 4.23 million households in the province (1999 estimate). Of this total, approximately 71%, or 3.01 million, were single-family (SF) dwellings. The remaining 29% were multi-family (MF) units, estimated to be 1.22 million units.

Table 2-1 shows SF and MF household estimates for nine regions in the province for communities with a population greater than 5,000. The table also shows the number of households in small communities (defined as towns with a population less than 5,000) and in Northwestern and Northeastern Ontario. Based on these definitions, 80% of 1999 Ontario households were located in 'urban' communities (i.e. in a municipality with a population greater than 5,000 or in southern Ontario).

Table 2-1
Ontario Household Estimates for 1999

Region	Total HH	SF HH	MF HH
GTA	1,550,453	852,700	697,800
Hamilton - Niagara	465,355	372,300	93,100
Ottawa	418,406	355,600	62,800
Windsor - Sarnia	215,385	193,800	21,600
London	222,904	178,300	44,600
Muskoka - Kawarthas	137,496	137,500	-
NE Ontario	148,390	133,600	14,800
Kingston-Pembroke	140,722	126,600	14,100
Kitchener - Waterloo - Barrie	140,722	112,600	28,100
Stratford - Bruce Peninsula	86,141	77,500	8,600
NW Ontario	60,293	54,300	6,000
Small communities	651,700	418,200	233,500
Total	4,237,967	3,013,000	1,225,000
Exclude North and Small	**3,377,584**	**2,406,900**	**970,700**

Table 2-2
Housing Stock Projections 1999-2005

Year	SF HH	MF HH	Total
1999	3,013,000	1,225,000	4,238,000
2000	3,043,100	1,237,300	4,280,400
2001	3,073,500	1,249,700	4,323,200
2002	3,104,200	1,262,200	4,366,400
2003	3,135,200	1,274,800	4,410,000
2004	3,166,600	1,287,500	4,454,100
2005	3,198,300	1,300,400	4,498,700

Household projections for 2000 to 2005 are shown in Table 2-2. These projections are based on a planning estimate of 1% growth per annum for both SF and MF dwellings in the province. Based on this assumption, the provincial housing stock is projected to grow by 260,000 units in 2005.

2.2 Estimated Generation of Residential Organic Waste in Ontario

The estimated amounts of organic household waste generated by SF and MF households in Ontario, along with the composition of the generated quantities, and the amount diverted and currently disposed is shown in Table 2-3.

Table 2-3
Quantities of Residential Organic Waste Generated, Diverted and Disposed by Household Type in Ontario in 1999

Item	SF HHs	MF HHs	TOTAL RESIDENTIAL
HHs in Province	3,013,000	1,225,000	4,238,000
Waste Generation Rate (tonnes/hh/year)	1.100	0.635	
Waste Generated (tonnes/year)	**3,314,300**	**777,900**	**4,092,200**
Organics Composition	**45.0%**	**41.8%**	
% Food	19.8%	32.4%	
% Leaf and Yard Waste	17.9%	1.0%	
% Disposable diapers	3.6%	5.0%	
% Compostable paper	3.7%	3.4%	
Total Organics Generated (tonnes/year)	**1,491,400**	**325,100**	**1,816,500**
Food	656,200	252,000	908,200
Leaf and Yard Waste	593,300	7,800	601,100
Disposable diapers	119,300	38,900	158,200
Compostable paper	122,600	26,400	149,000
Organics Generation by HH (kg/HH/year)	**495**	**265**	**429**
Food	218	206	214
Leaf and Yard Waste	197	6	142
Disposable diapers	40	32	37
Compostable paper	41	22	35
Diverted kg/hh/yr	128	-	91
Organic Waste Diverted (tonnes/year)	**393,000**	**-**	**393,000**
Food	73,000	-	73,000
Leaf and Yard Waste	320,000	-	320,000
Disposable diapers	-	-	-
Compostable paper	-	-	-
Organic Waste Disposed (tonnes/year)	**1,098,400**	**325,100**	**1,423,500**
Food	583,200	252,000	835,200
Leaf and Yard Waste	273,300	7,800	281,100
Disposable diapers	119,300	38,900	158,200
Compostable paper	122,600	26,400	149,000

3.0 RESIDENTIAL ORGANIC WASTE RECOVERY ESTIMATES FOR DIFFERENT SCENARIOS

This section outlines the amount of residential organic waste potentially recoverable in Ontario under a number of different scenarios. This has been done to assess the feasibility of recovering the additional 1 million tonnes of residential organic waste required to achieve a 50% diversion target.

3.1 Maximum Potential Recovery Estimate

Table 3-1 presents estimates of the maximum residential organic waste recovery potential from SF and MF homes throughout Ontario, using 1999 households and waste quantities for illustration.

Table 3-1
Potential Maximum Recovery of Residential Organic Waste from Communities with Populations Greater than 5,000 in all Regions of Ontario (1999 Household Estimates)

1. Scenario 1 - Maximum Recovery at 300 kg/hh/yr for SF HHs *			
	SF	MF	Total
HHs served	2,594,800	991,500	3,586,300
Organics Diversion Rate (kg/hh/yr)	300	265	
Potential Tonnes Diverted	**778,000**	**263,000**	**1,041,000**
2. Scenario 2 - Maximum Recovery at 400 kg/hh/yr for SF HHs *			
	SF	MF	Total
HHs served	2,594,800	991,500	3,586,300
Organics Diversion Rate (kg/hh/yr)	400	265	
Potential Tonnes Diverted	**1,038,000**	**263,000**	**1,301,000**

* Some figures may not sum due to rounding.

Table 3-1 shows that the goal of recovering 1 million tonnes or more of organic waste from residential sources in Ontario is feasible, but requires comprehensive organics service to virtually all households in the Province. This comprehensive service level is assumed to be curbside organic waste pick-up for the remainder of this document, as this approach is the only one which yields high enough recovery per household to achieve the targets. Other approaches such as drop-off depots provide good service levels to those interested in participating, but are somewhat less convenient than curbside pick-up, and therefore lower overall participation and overall organics recovery would be expected.

All towns and cities with a population of greater than 5,000 were included in the estimates to align the organics recovery estimates with the requirements of the existing provincial 3Rs regulations which mandate recycling for communities with populations greater than 5,000. It should be noted that some small communities (i.e. with a population less than 5,000) may implement or expand their existing organics diversion programs - thereby increasing diversion totals presented in Table 3-1. Estimates to address this activity are included later in the document. Estimates presented in this document were developed assuming the following recovery values:

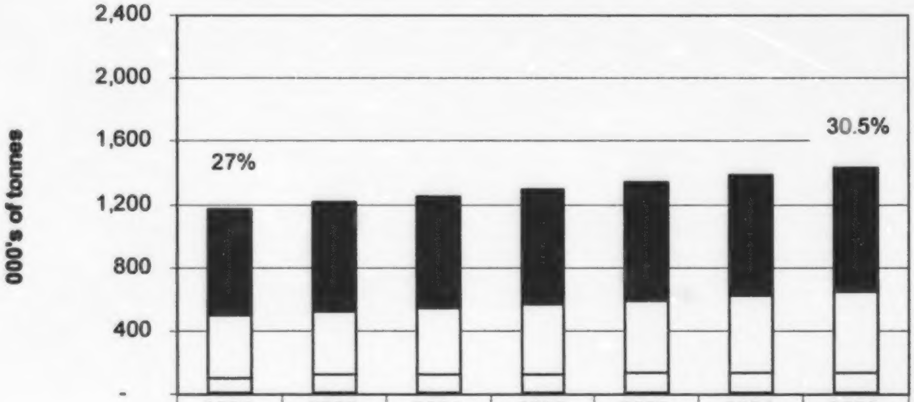
- SF - 300 kg/hh/yr (60% recovery), no user pay;
- SF - 400 kg/hh/yr (80% recovery), with user pay, and
- MF - 265 kg/hh/yr (100% recovery) assuming all MF garbage (635kg/household/year) goes through a mixed waste processing plant.

Table 3-1 also shows that the maximum feasible recovery of organic waste from residential sources in Ontario (including all Northern Ontario and MF households - but excluding households in communities with a population less than 5,000) is about 1.3 million tonnes (in 1999 figures). Assuming about a 5% growth rate between the year 2000 and 2005, this total might increase to approximately 1.45 million tonnes.

3.2 Recovery Scenario #1 – Current Momentum

Figure 1 shows a "Current Momentum scenario" for organics, where an estimated 503,000 tonnes/year of organics from the residential sector (Figure 1 also projects parallel growth in recyclables and HSW) are recovered by the year 2005. This level of activity represents 110,000 tonnes more than the estimated 393,000 tonnes diverted in 1999. The 1999 estimate includes 281,000 tonnes collected for central composting, and an estimated 112,000 tonnes diverted through 1.1 million backyard composters.

Figure 1
Current Momentum Scenario Diversion Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	687	707	727	747	767	787
☐ Organics	393	403	421	434	460	488	503
☐ Bulky Recycling	100	116	119	122	125	128	131
☐ HSW	6	7	7	8	9	9	10

A diversion rate of 110kg/composter/year is used for all estimates in this document. This rate is lower than current estimates of about 160kg/composter/year, which result in an estimated 182,000 tonnes/year diverted through backyard composting in Ontario. This value is considered too high. The "write-down of backyard composting tonnes" from the previous estimate of 182,000 tonnes/year to 112,000 tonnes/year is shown in year 1999. Diversion of 10,000 tonnes of additional organic waste in year 2000 is assumed to occur through program improvements and the addition of 70,000 SF households to curbside organics programs.

The year 2005 recovery target is based on the assumption that the existing organics diversion system will continue to evolve over the next five years with some level of innovation but in a minority of communities. The assumed roll-out schedule for this scenario is presented in Table 3-2. Generally, this scenario assumes limited growth in curbside separation systems for SF households and partial provision of mixed waste processing services to some City of Toronto MF units, based on the planned construction of the Canada Composting Inc. (CCI) anaerobic digestion facility at the Dufferin St. Transfer Station, currently scheduled for completion in mid-2001.

Table 3-2
Assumed Roll-out Schedule for the Current Momentum Scenario

Year	SF HHs	MF HHs	Total HHs
2000	70,000	0	70,000
2001	120,000	40,000	160,000
2002	220,000	40,000	260,000
2003	380,000	112,000	392,000
2004	540,000	112,000	652,000
2005	700,000	112,000	812,000

Key variables for change over the next five years necessary to reach the Scenario 1 recovery target are listed in Table 3-3 with a description of the broad program assumptions underlying the year 2005 recovery target provided below.

- By 2005, 630,000 additional SF households (for a total of 700,000 SF units) will be provided with a comprehensive organics collection system and will achieve an 60% capture rate for an average recovery rate of 300 kg/hh/yr for all households with access to services. This will be an increase of 190kg/household/year over the likely diversion currently achieved by these households, who probably have some type of leaf and yard waste service at this time.
- The remaining 2.4 million SF households in the province - in both large and small communities but excluding the northern areas - will achieve an average recovery rate of 110 kg/hh/yr (or an average capture rate of 22%), through a combination of leaf and yard waste collection and backyard composting.
- Approximately 25% of Toronto MF units (112,000 dwellings) will be served with a mixed waste processing system resulting in an average recovery rate of 265kg/hh/yr of organic waste, representing 100% capture rate of organics through mixed waste processing for these dwellings (additional 30,000 tonnes/year).
- The balance of MF dwellings in this scenario are assumed to divert minimal levels of organics.

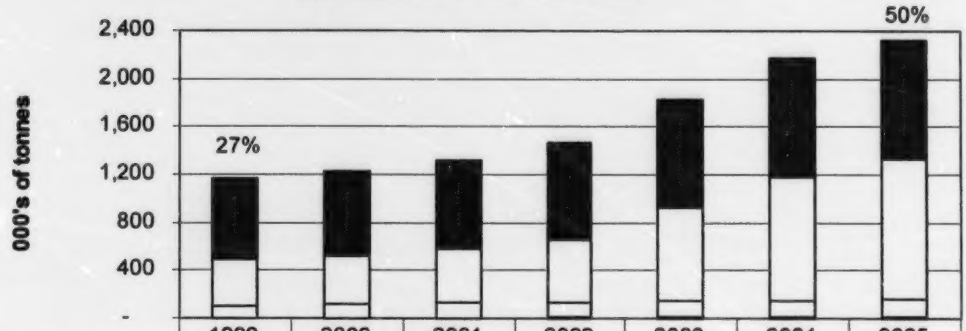
Table 3-3
Current Momentum Scenario Key Variables

Parameter	Tonnes Diverted in 2005
•• 700,000 SF hh (630k new & 70k existing) with comprehensive curbside organics @ 300kg/hh/yr	210,000
•• 112,000 MF hh with organics removal through mixed waste processing (635kg/hh/yr processed, 265kg/hh/yr organics removed). 71,120 tonnes of mixed waste processed and 30,000 tonnes of organics recovered.	30,000
•• 2.4 million SF hh diverting 110kg/hh/year through leaf and yard waste programs and backyard composting	263,000
TOTAL ORGANICS DIVERTED	**503,000**

3.3 Scenario #2 - 50% Diversion by 2005

As shown in Figure 2, the 2005 target for this scenario is 1.168 million tonnes of organics from the SF and MF households. The figure illustrates the annual growth required to get to 50% diversion, and the comparative contribution needed from other material streams. The achievement of the year 2005 target represents 775,000 tonnes more than the 393,000 tonnes actually diverted in 1999.

Figure 2
50% Diversion Scenario Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	702	738	810	898	986	1,000
□ Organics	393	403	458	526	779	1,035	1,168
□ Bulky Recycling	100	116	124	132	140	145	151
□ HSW	6	7	7	8	9	9	10

Table 3-4
Assumed Roll-out Schedule for the 50% Diversion Scenario

Year	SF HHs	MF HHs	Total HHs
2000	70,000	0	70,000
2001	220,000	40,000	160,000
2002	500,000	112,000	412,000
2003	1,400,000	250,000	1,250,000
2004	2,200,000	400,000	2,100,000
2005	2,520,000	600,000	3,120,000

The assumed roll-out schedule for the 50% scenario is listed in Table 3-4. The table shows modest increase in capacity development during the next two years with a sharp rise in households served starting in 2003. The number of MF units served would increase to 600,000 dwellings, which is 50% of the projected year 2005 MF household stock. The schedule also reflects the need to install capacity to process organic waste which requires a minimum 2-3 year lead time and without which the strategy can not be implemented.

A year 2005 1.168 million tonne recovery target would require a considerable increase in recovery rates compared to existing levels. As shown in Table 3-5, average household recovery rates would need to increase to a level that compares with rates currently achieved by top performing programs.

Table 3-5
50% Diversion Scenario Key Variables

Parameter	Tonnes Diverted in 2005
••1,770,000 SF hh with comprehensive curbside organics @ 400kg/hh/yr	708,000
••750,000 SF hh with comprehensive curbside organics @ 300kg/hh/yr	225,000
••680,000 SF hh @ 110 kh/hh/yr from leaf and yard waste + BYC	75,000
••600,000 MF hh with organics removal through mixed waste processing (635kg/hh/yr processed, 265kg/hh/yr organics removed); 381,000 tonnes of mixed waste processed and 160,000 tonnes of organics recovered.	160,000
TOTAL ORGANICS DIVERTED	**1,168,000**

If these levels of performance were to be achieved, province-wide bag limits and user fees would be needed, in addition to regionally appropriate landfill bans on organics.

Key program assumptions underpinning the year 2005 50% recovery target are described below.

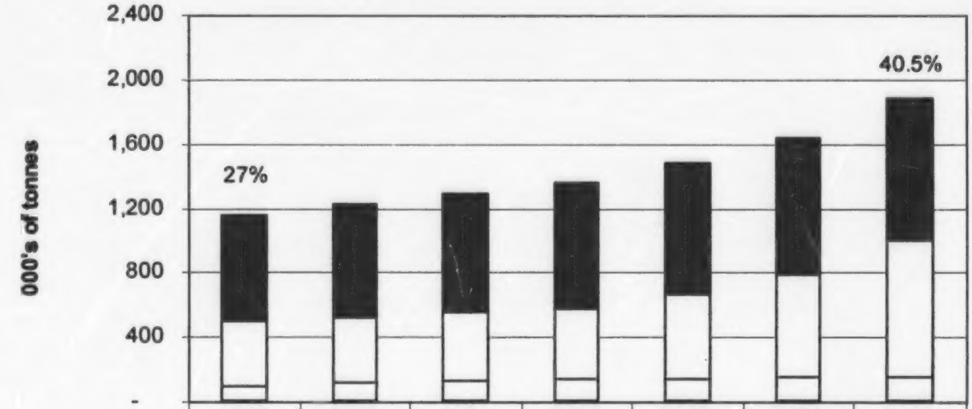
- Approximately 1.77 million SF households would need to achieve an average capture rate of 80% for all organics generated for an average recovery rate of 400 kg/hh/yr
- It was assumed that 750,000 SF households would achieve an overall lower diversion rate of a 300 kg/hh/yr.

- It was assumed that all Toronto MF households (about 450,000) and 150,000 MF units from other large municipalities (GTA, Ottawa, Hamilton, Waterloo) would be provided with a level of service that could capture 100% of all organics generated for an average recovery rate of 265 kg/hh/yr for each participating household.
- The majority of the remaining MF households in the province were assumed to divert no organics.

3.4 Scenario #3 - Middle Ground Diversion Scenario

The Middle Ground Scenario (named to reflect the fact that it is between the 50% and current momentum scenarios) is considered very aggressive, but achievable as long as the appropriate supports are in place. As shown in Figure 3, the year 2005 diversion target for this scenario is 845,000 tonnes. This level of performance represents 452,000 tonnes more than the 393,000 tonne recovery figure used for 1999.

Figure 3
Middle Ground Scenario Diversion Projections



	1999	2000	2001	2002	2003	2004	2005
■ Recycling	667	702	738	773	809	844	880
□ Organics	393	403	423	444	524	638	845
□ Bulky Recycling	100	116	124	132	140	145	151
□ HSW	6	7	7	8	9	9	10

The 845,000 tonne recovery target requires an expansion of service to MF households (along with improved recovery rates) and an increase in SF recovery rates to a range that is now achieved by top performing programs across the province. It also anticipates aggressive implementation of an intensive 2 or 3-stream system and an increase in the number of use pay programs in the province. The assumed roll-out schedule for this scenario is listed in Table 3-6.

Table 3-6
Assumed Roll-out Schedule for the Middle Ground Scenario

Year	SF HHs	MF HHs	Total HHs
2000	70,000	0	70,000
2001	120,000	40,000	160,000
2002	220,000	40,000	260,000
2003	700,000	112,000	812,000
2004	1,300,000	200,000	1,500,000
2005	2,000,000	275,000	2,275,000

Key variables for the Middle Ground scenario are listed in Table 3-7 with a description of the important program assumptions underpinning the year 2005 recovery target provided below.

- Three levels of SF recovery rates are assumed. A limited number of households (i.e. approximately 400,000 hhs) will capture 80% of organics generated for an average recovery rate of 400 kg/hh/yr for each participating household (160,000 tonnes).
- Approximately 1.6 million SF households will achieve a 60% average capture rate for an average recovery rate of 300 kg/hh/yr for each participating household (480,000 tonnes).
- Approximately 1.2 million SF households will achieve a 22% capture rate for an average recovery rate of 110 kg/hh/yr for each participating household (133,000 tonnes).
- 275,000 MF households would have mixed waste processing (73,000 tonnes). This could be accomplished in Toronto, or by Toronto and one or more other GTA municipalities

Table 3-7
Middle Ground Diversion Scenario Key Variables

Parameter	Tonnes Diverted in 2005
••400,000 SF hh with comprehensive curbside organics @ 400kg/hh/yr	160,000
••1,600,000 SF hh with comprehensive curbside organics @ 300kg/hh/yr	480,000
••1.2 million SF hh diverting 110kg/hh/year through leaf and yard waste programs and backyard composting	133,000
••275,000 MF hh with organics removal through mixed waste processing (635kg/hh/yr processed, 265kg/hh/yr organics removed), 175,000 tonnes/year garbage processed, 73,000 tonnes organics recovered	73,000
TOTAL ORGANICS DIVERTED	**845,000**

4.0 RESIDENTIAL ORGANICS DIVERSION FROM SINGLE FAMILY HOMES

There are a number of challenges to implementing curbside organics recovery programs throughout Ontario which need to be taken into consideration when developing a comprehensive roll-out strategy. Some of these are discussed briefly below.

- **Public Acceptance (Inconvenience, etc.) and Behaviour Change**

The Ontario public has adopted recycling as a way of life, and it is estimated that most Ontario residents recycle on a regular basis.

Backyard composting was added to the recycling program in Ontario as the first step in tackling organics diversion. Many years of experience running backyard composting programs has shown that about 30% of Ontario householders are willing to backyard compost. This is significantly less than the number willing to recycle. Reasons for this include the convenience of recycling and the fact that no "nuisance impacts" (e.g. odours, carrying organics to the backyard composter in winter, etc.) are involved.

To achieve the diversion contemplated in this strategy, virtually all Ontario residents would need to become involved in source separation and storage of organics in the home. This is a significant behaviour change over what currently is required from residents, and many programs have had growing pains trying to get residents to participate in organics diversion programs.

Collection schedules may allow weekly collection of organics (in some cases, it may be bi-weekly). This will likely result in some odour complaints, particularly in summer. Experience from communities who have successfully implemented organics source separation programs (Guelph, St. Thomas, Town of Essex, Caledon, Halifax and other Nova Scotia communities) will need to be carefully evaluated to identify the success factors in launching comprehensive organics programs.

- **Higher Cost**

For many municipalities, the cost of the organics program may require a budget increase, both for start-up funds, and on-going operating costs. Financial assistance from the Province and other industry sources is essential to help offset resistance to moving to a higher cost system.

- **Education**

Some of the above points can be addressed through design of a comprehensive education package explaining the benefits of organic waste diversion. A comprehensive education program will be required in each case when the organics system is initially rolled out, and on-going education is needed to make sure that residents understand source separation requirements, collection schedules, etc.

- **Political Will**

Municipal politicians will find it difficult to support a move to comprehensive organics diversion programs if they cost more than current management practices, and also if they inconvenience householders (and therefore lead to complaints to municipal councillors). A system of explaining the reasons for moving to comprehensive organics programs needs to be developed, along with education programs to councilors who have to defend the decisions when made. Municipal members of the OTG have commented that provincial legislation and regulations make life easier in some ways for councillors to explain to the public why changes that inconvenience them are required.

- **Enforcement and Incentives**

Some residents will be reluctant to participate in comprehensive organics separation programs unless some enforcement or incentive-based mechanisms are implemented at the same time. User pay programs for garbage are likely to provide householders with an incentive to separate as much organic waste as possible from the waste stream. Bag limits also serve a similar purpose, by encouraging people to put more organic waste into the correct stream and out of the garbage stream. Enforcement mechanisms such as not picking up improperly source separated waste are also effective, but likely require some type of transparent container or bag for inspection. Disposal bans on organics (possibly enforceable at the curb) would also encourage source separation.

- **Role of Service Provider**

The collection service provider is the first line of communication between the waste management system and the residential waste generator. Comprehensive source separation programs require more involvement on the part of the service provider. Leaving a note to alert households to the fact that waste was improperly source separated is an effective method to educate the public. Higher levels of staff training will be required to meet the needs of this expanded role.

5.0 ROLE AND POTENTIAL CONTRIBUTION OF BACKYARD COMPOSTING

An estimated 1.1 million backyard composting units have been distributed in the Province of Ontario. To this time, it has been estimated that these composters divert an estimated 182,000 tonnes/year of organic waste.

Estimates of the diversion per composter used by municipalities in Ontario vary from 200kg/unit/year used by Toronto, to 120-160 kg/unit/year used by Peel. Recent studies indicate that these estimates are overly optimistic, and that 110kg/composter/year is a more accurate number.

The 110 kg/composter value will be used by WDO for estimates from year 2000 forward, until a firmer number can be established through research. Therefore, from year 2000, the existing 1.1 million backyard composters will be assumed to divert 112,000 tonnes/year, rather than the 180,000 tonnes per year previously assumed. This "write-down" of 68,000 tonnes presents an even larger challenge to meet the targets set by the WDO process.

The initial estimates of the amount of diversion required to reach 50% assume that an estimated 310,000 tonnes of organic material (total) could be diverted through backyard composting. This was originally an additional 130,000 tonnes in addition to the 182,000 tonnes assumed to be currently diverted. Based on the new, lower recovery rate, current composters divert an estimated 112,000 tonnes/year. On the basis that each composter could realistically divert 110kg/unit/year, an additional 2 million units could potentially need to be distributed to bring the total to 310,000 tonnes.

It is assumed that even with comprehensive curbside service, some householders who have become used to the habit of backyard composting (about 30% of single family homes in Ontario), and will continue to divert some organic waste (particularly leaf and yard waste and vegetable scraps) through the backyard composter, but will also use the curbside system for foods not suitable for backyard composting (cooked foods and meats, etc.), and also during winter, when it is less convenient to backyard compost. The impacts of these various backyard composting factors are considered in the average per household recovery estimates presented in Section 3.

It has also been assumed that backyard composting will continue to play an important role in Northern Ontario and also rural areas where comprehensive curbside organic systems are unlikely to be implemented.

The OTG have provided $30,100 to a number of research studies (Waterloo, Woodstock, Augusta, Peel) in Round One and $6,800 in Round 2 to assess the long term behaviour with respect to backyard composting, and also measure the kg per composter diverted.

6.0 DIVERSION OF RESIDENTIAL ORGANIC WASTE FROM MULTI-FAMILY HOUSING

The OTG generally feels that source separation of organics may not be feasible at multi-family households, particularly in existing buildings that have not been custom designed to accommodate source separation at the household level. Therefore if the organic waste stream from existing multi-family buildings is to be diverted, mixed waste processing of all garbage from multi-family households is required (without source separation) to recover or stabilize the organic component. Preliminary estimates show that this is a very high cost option, but is required to meet the 50% diversion target.

New multi-family buildings could incorporate design features (such as separate chutes) which could more readily accommodate the source separation of organic waste, but the effects of this design change would not significantly impact on organic waste diversion for some time.

Mixed waste processing of apartment waste probably only makes sense in some parts of the province (e.g. GTA, Ottawa, Hamilton, Waterloo) which have high concentrations of multi-family housing. On this basis, scenarios developed by the OTG did not consider this option beyond these four areas. The maximum recovery potential from these four areas is about 200,000 tonnes of residential organics if all multi-family waste is processed.

The costs need to be assessed in more detail to determine if this approach has a place in any of the strategies. More data will be available when tests currently being carried out at SUBBOR (Guelph), and information on the CCI facility at Dufferin Street Transfer Station in Toronto is available.

In Round 1, the OTG allocated $35,000 to City of Toronto to test the performance of the Canada Composting Inc (CCI) mixed waste facility to divert organic waste from multi-family housing at the Dufferin Transfer Station site. Unfortunately, construction delays mean the plant construction will not be completed until summer, 2001. This schedule will not permit testing before March, 2001, therefore this information will not be available for the OTG work.

The OTG allocated $15,000 to Quinte Waste Solutions in Round 1 to test source separation of organics from multi-family households, and $22,500 to Region of Ottawa Carleton to test mixed waste processing at the Conporec Facility in Round 2.

7.0 NORTHERN ONTARIO AND RURAL AREAS

There are a few urban communities in the North where comprehensive curbside organics programs could be considered, and might be economically competitive with other systems. These include Thunder Bay, Sault St Marie, Sudbury, North Bay and Timmins. It is not considered likely that other smaller communities in Northern Ontario would consider comprehensive organics systems at this time. The municipal representative from Northern Ontario on the OTG has stressed the need to focus on recycling and HSW in the North in the short term, and deal with organics at a future time. Diversion of organic waste is not a high priority for Northern Ontario communities, and the OTG feels that systems should be fully proven in the south, before significant implementation should be considered in the North.

Comprehensive organics collection systems are probably not viable for rural areas in Ontario at this time, because of the lack of processing capacity, and the likely high costs of the systems. Rural residents are likely to use backyard composters and divert residential organics effectively through this approach, as the practice of composting is well established in rural and agricultural areas.

The OTG generally assumed that no comprehensive organics programs would proceed in the North or in rural areas before year 2005, except in the case of the 50% diversion scenario, when tonnage from northern single family households is required to meet the target. Backyard composting is considered a suitable residential organics diversion approach for both Northern and rural areas, and it has a strong role to play in these areas.

Some Northern communities are currently assessing strategies to increase the diversion of waste from disposal as part of more comprehensive planning exercises. The OTG has provided some support to encourage the assessment of organics options as part of these strategies.

The OTG allocated $10,000 to Sault St Marie and the Tri-Neighbours in Round One to address organics in the Waste Management Plan being initiated by the City of Sault St Marie. The City of Sudbury received $75,000 in Round 2 to partially fund the construction of compost pads at existing landfills.

A total of $31,800 was allocated to rural communities in Rounds 1 and 2 (Arnprior, Village of Rosseau in Seguin Twp, Dufferin County) to assess both backyard composting and source separated organics collection.

8.0 COMPOST MARKETS

The three strategies discussed in Section 3 would result in potentially significant amounts of compost being produced by processing of organic waste which is currently disposed. The additional amounts of finished compost that would enter the marketplace are estimated to be 50,000 tonnes/year for the Current Momentum scenario, 380,000 tonnes/year for the 50% Diversion scenario and 200,000 tonnes/year for Middle Ground scenario. Market development for compost products is critical to the success of any organics diversion strategy, to ensure that the product can be put to its highest and best use, and that stable and high revenues can be secured from the sale of the end product.

An assessment of Canadian compost markets carried out by OCETA[1] in 1996 indicated that about 700,000 tonnes (1.6 million cu yds) is produced annually in Canada. By far the largest market for compost is as a soil amendment used by landscape contractors. Of the total:

- a large amount of compost (1 million cu yds) is sold directly to landscape contractors, either as a blended product in topsoil or as a pure compost.
- a smaller amount of compost (200,000 cu yds) is sold to consumers through garden centres and retailers. These products are often a blend of compost with other materials such as composted bark, peat moss and topsoil, to create a soil conditioner.
- the remaining 400,000 cu yds is either used by municipalities in municipal landscaping programs, as landfill cover, given away each year by municipalities to consumers or other compost users, or sold at very low prices. This product is typically a pure compost, of varying quality, sold in bulk.

Compost is also used for mine rehabilitation and site remediation purposes. Compost is price competitive with peat moss, and knowledgeable users will substitute a certain amount of compost for topsoil and peat moss in certain applications. Agriculture is not a large user of compost, but there is great potential to increase the use of compost by this sector, although the value will remain low.

Organizations such as AQIC in Quebec are a good example of an industry organization that supports the growth of compost markets. The association represents members that produce and market compost (minimum 10,000 tonnes/year) and is a strong supporter of compost standards what will improve market growth.

Research is required to identify the capacity of the existing market to absorb the increased amounts of compost which would be produced by the 5-year strategy chosen, and also the revenue impacts of an increasing supply of compost. Market development strategies which could strengthen the existing market (e.g. some US states require compost in road construction projects for slope stabilization, etc.), and barriers to expanding the existing markets need to be identified.

A number of issues related to compost standards also need to be addressed.

The OTG support the recommendation proposed by the Composting Council of Canada that the Ontario Ministry of the Environment adopt the Canadian Council of Ministers of the Environment's (CCME) *Guidelines for Compost Quality*, as established and agreed upon by all provincial and territorial ministries of the environment, in concert with national and regional representatives of the composting industry. These guidelines focus on four criteria for product safety & quality; specifically, maturity, foreign matter, trace elements and pathogens. Adoption of *CCME's Guidelines for Compost Quality* would replace Ontario's *Interim Guidelines for the Production & Use of Aerobic Compost*, as established in 1991. Adoption of these guidelines would enable the Ontario compost industry to operate in harmony with other Canadian jurisdictions thereby maximizing efficiencies and market potential while ensuring adherence to important product safety and quality parameters.

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[1] *Markets for Compost*, Ontario Centre for Environmental Technology Advancement, 1996

Recognizing the importance of compost markets, the OTG approved $97,810 in funding to a number of compost markets studies and assessments in Rounds 1 and 2.

Projects funded include:

- *$10,800 to City of Orillia to test compost bagging and also the use of compost in new subdivisions;*
- *$6,010 to City of Guelph to test glass grinding technology to eliminate glass shards in compost and increase the market value;*
- *$6,000 to Region of Waterloo to interview 100 farmers to promote organics landspreading;*
- *$22,500 to Region of Ottawa Carleton to test compost performance in three different applications (Vegetable Field Applications, Greenhouses and Golf Courses), and $52,500 to the Composting Council of Canada to evaluate current regulations and standards for compost marketing, and to develop networks of producers and users to market compost.*

9.0 PRELIMINARY ESTIMATE OF CAPITAL COSTS TO CREATE COMPREHENSIVE ORGANICS INFRASTRUCTURE IN ONTARIO

This section outlines the range of capital costs potentially involved in developing a comprehensive residential organics diversion infrastructure in Ontario. It should be noted that the infrastructure for some IC&I organics is already well developed in some parts of the Province through a system of landspreading, rendering and other technologies (e.g. Thermotech, etc.) in addition to composting facilities. Should a comprehensive residential organics strategy be pursued, cooperation with IC&I systems would considerably reduce the start-up costs of the system, and make the overall system more cost competitive.

Capital costs for the organics infrastructure required to implement the 5-Year Strategy would fall into the following categories:

- ➢ central processing facilities for leaf and yard waste, source separated organics (e.g. leaf and yard, food and some paper products) and mixed waste processing facilities;
- ➢ collection equipment such as trucks and bins etc
- ➢ backyard composters

•• Central Processing Facilities

Table 9.1 presents the estimated capital costs of central composting and mixed waste composting facilities required for the three scenarios outlined in Section 3. For the purpose of developing these estimates, it was assumed that new processing capacity would be required to meet all processing needs. The distribution, capacity and type of existing facilities (i.e. can they process food wastes) will be identified through a project funded in Round 2 and being carried out by The Association of Municipal Recycling Coordinators (AMRC). Information from this study can be used to refine estimates at a future time.

As discussed in Section 6, the OTG feels that the only realistic targets for mixed waste processing facilities to address multi-family waste would be four large urban centres where large volumes of multi-family waste are available (GTA, Kitchener/Waterloo, Hamilton and Ottawa). London, Ontario could also be considered as a fifth location. The number of plants required will depend on the scenario adopted for the 5-year strategy. There are two mixed waste processing plants in operation in Ontario at this time (SUBBOR, Guelph and CCI, Newmarket). A second CCI facility will come on stream in Toronto in mid-2001.

Land purchase costs are not included in Table 9.1, as the location of the various plants is not known at this time. In some partnership arrangements, municipalities may provide the land at no direct cost.

- **Collection Equipment**

Municipalities generally test whether bags or bins work best in their local area for organics collection. For communities that decide to use carts, they will probably elect to purchase trucks with automated arms for bin collection. The initial capital costs associated with bins (typically $90/unit) are a significant additional cost to the new system, and have a number of benefits including less strain on collection workers (because of the automated arm).

Communities who use bags for organics collection will likely continue to use trucks that are similar to their current fleet. Assuming that in each scenario, 50% of Ontario municipalities will choose each system, different costs would be incurred.

Collection trucks for various waste streams are replaced on average every eight years. The costs of collection trucks have increased in the last few years, to a point where a new truck can cost $50,000 more per unit than the truck that formerly was used.

Table 9.1 presents the estimated costs of truck replacement, assuming an incremental cost of $50,000 per truck above the normal replacement cost currently included in the collection contract. Because multi-family waste would continue to be collected by conventional garbage trucks, no additional cost is assumed for this activity

- **Capital Costs of Backyard Composters**

As discussed in Section 5, the role of backyard composting in the 5-year strategy is not clear at this time. It is generally felt that backyard composting is a very cost effective approach to diversion of organics in rural and northern areas.

At one stage early in the process, a comprehensive backyard composting strategy to divert 200,000 tonnes/year was contemplated. This approach was not pursued when it was determined that the diversion targets required could not be met by backyard composting alone, and that comprehensive curbside collection would be essential to achieve the recovery figures needed. At one stage, an estimated 2 million backyard composting units would be purchased, at a capital cost of $60 million. This is not now considered likely, based on the analysis in Section 3. At most, an additional 500,000 backyard composters may be purchased, at a capital cost of $15 million.

Table 9.1
Estimated Capital Costs of Three Scenarios (excluding land purchase costs)

Item	Scenario 1 Current Momentum	Scenario 2 50% Diversion	Scenario 3 Moderate Growth
Additional Tonnes by 2005 (rounded)	100,000t	770,000t	450,000t
Single Family	70,000t/y	600,000t/y	370,000t/y
New Single Family Units with Comp Orgs	630,000	2,450,000	1,930,000
Trucks required	90[2]	350	280
MF Organics & HH	30,000t 112,000 MF hh	170,000 t 600,000 MF hh	73,000t 275,000 MF hh
Central Processing (Source Separated)	70,000t/yr $28 million	600,000t/yr 12 plants @ 50k t/y[3] $240 million	390,000 t/y 8 plants @ 50k t/y $160 million
Mixed Waste Processing	71,000 t/yr $35 million[4]	380,000t/y $ 190 million	200,000t/y $90 million
New Processing Capital Costs (Estimated)	$63 million	$430 million	$250 million
Bin Costs (50% of SF)	$27 million	$110 million	$86 million
Incremental Truck Costs	$4.5 million	$17.5 million	$14 million
TOTAL	**$95 MILLION**	**$558 MILLION**	**$350 MILLION**

10.0 SYSTEM COST ESTIMATES

To date, most organic waste diversion in Ontario has been achieved through either backyard composters or leaf and yard waste collection. A few programs provide comprehensive curbside service. The cost of the existing organics management system in Ontario, which diverts an estimated 281,000 tonnes to central composting, and an additional 112,000 tonnes through backyard composting, has been estimated at $25 million/year. This cost estimate was developed in a study commissioned by the Programs Committee, and funded through contributions from the Optimization, HSW and Organics Task Groups.

The costs of the three scenarios presented in Section 3 have been estimated assuming the existing system cost of $25 million/year, and that new organic tonnes will be added to the system at the following costs, as listed in Table 10-1.

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[2] Assuming each truck serves 7,500 hh, with 10% spare

[3] Based on estimate of $18-$20 million for 50,000 t/y plant, obtained from OTG members

[4] Based on 25% higher cost than source separated handling same tonnage

Table 10-1
Estimated Organics Diversion and Garbage Management System Costs

Parameter	Assumed Cost/Tonne
•• Source separated organics (collection plus processing)	$140/tonne
•• Mixed waste processing of MF waste (collection plus processing)	$30/tonne collection plus $85/tonne for all garbage collected from MF units involved
•• Existing leaf and yard waste collection programs	$80/tonne
•• Garbage collection and disposal for single family homes	$100/tonne
•• Garbage collection and disposal for multi-family homes	$85/tonne
•• Backyard composting	$27/tonne[5]

Figures 4 through 6 summarize cost projections for each of the diversion scenarios described earlier. Cost projections for each scenario are presented for the period 2000 to 2005. Each figure shows the estimated cost of the organics diversion system, and also the cost of disposal of unrecovered organics as garbage, to show how the costs change with higher recovery scenarios. Table 10-2 summarizes total projected expenditures to manage organic diversion programs over this period for each scenario.

Table 10-2
Summary of Organics Diversion Program Expenditures

Annual Expenditure	Current Momentum	50% Diversion	Middle Ground
2000	$27,800,000	$27,800,000	$27,800,000
2001	$32,300,000	$38,100,000	$32,600,000
2002	$35,500,000	$54,700,000	$36,900,000
2003	$44,900,000	$105,000,000	$57,400,000
2004	$50,700,000	$152,700,000	$83,700,000
2005	$55,600,000	$179,400,000	$118,500,000
6 Year Expenditure	**$246,800,000**	**$557,700,000**	**$356,900,000**

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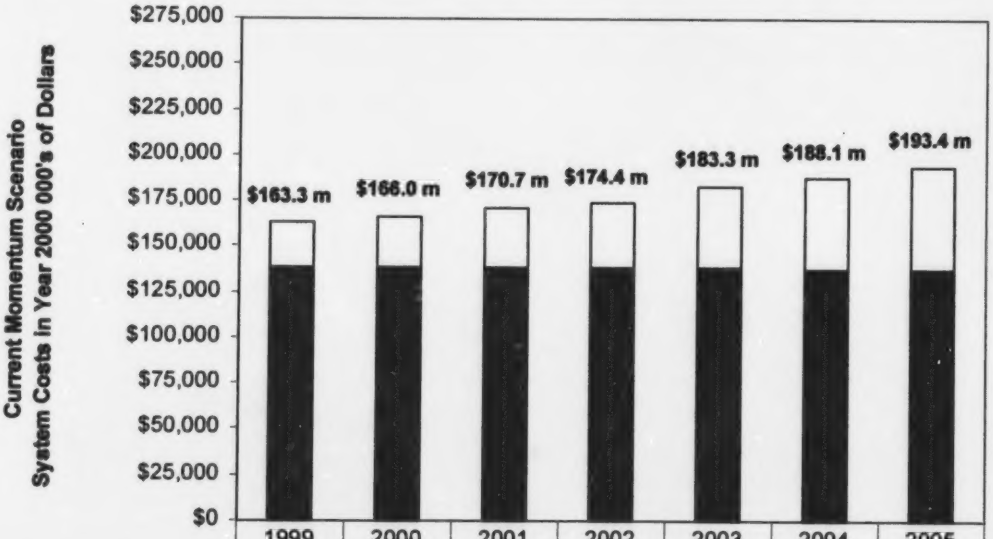
[5] $25 million cost of the existing organics system was allocated to 281,000 tonnes of leaf and yard waste at $80/tonne and 112,000 tonnes through backyard composters at $27/tonne. These rates were used for projections to remain in line with existing costs

Figure 4 shows the projected costs for the Current Momentum Scenario, including the costs of disposing of organic waste not collected in the diversion system. This is essential to capture the cost savings in disposal for high diversion systems. A summary of key points presented below:

- By the year 2005, the annual cost of organics diversion is estimated to be $56 million, approximately two times greater than the year 2000 estimate. This is because 630,000 new SF households will move from leaf and yard waste collection @ $80/tonne to comprehensive curbside organics @ $140/tonne
- The annual cost of organic waste disposal from SF and MF sources is projected to remain about the same as year 2000 expenditures.
- Total annual diversion and disposal expenditures are projected to increase 18%, from $163 million in 2000 to $193 million in 2005.
- As a percentage of the total system, expenditures on organics diversion programs are projected to increase from 15% in 2000 to 29% in 2005.
- Total expenditures (in year 2000 dollars) on organics diversion programs for the period 2000-2005 are projected to be $247 million.

Figure 4
Current Momentum Scenario Cost of Organics Diversion (000's of dollars)

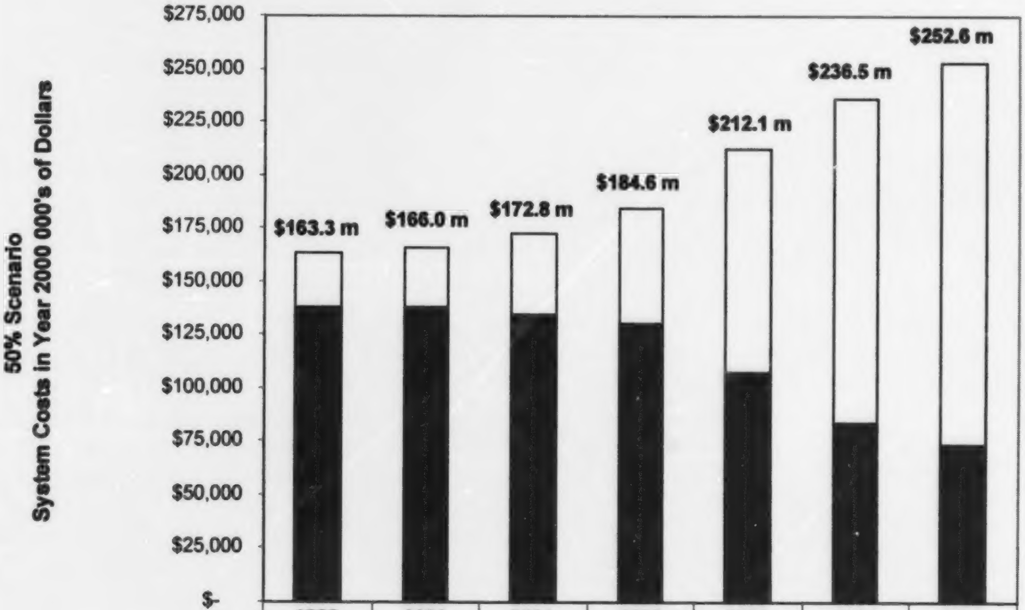


	1999	2000	2001	2002	2003	2004	2005
Total System Cost	$163,300	$166,000	$170,700	$174,400	$183,300	$188,100	$193,400
□ Organics Diversion	$25,000	$27,800	$32,300	$35,500	$44,900	$50,700	$55,600
■ Organics Disposal	$138,300	$138,200	$138,400	$138,900	$138,400	$137,400	$137,800

Figure 5 shows the projected costs for the 50% Diversion Scenario with key points summarized below:

- By 2005, annual expenditures on organics diversion programs are projected to total $178 million, a 7-fold increase compared to 2000 projections.
- The cost of handling diverted and disposed organic waste is projected to total $253 million in 2005, a 55% increase compared to year 2000.
- Between 2000 and 2005, the annual cost of residential organic waste disposal is projected to decline considerably, by 47% to $73 million in 2005.
- As a percentage of total system costs, expenditures on organics diversion programs are projected to increase from 15% in 2000 to 71% in 2005.
- Total expenditures on organics diversion programs for the period 2000-2005 are projected to be $558 million, approximately 2.2 times greater than that projected for the Current Momentum scenario.

Figure 5
50% Scenario Cost of Organics Diversion (000's of dollars)

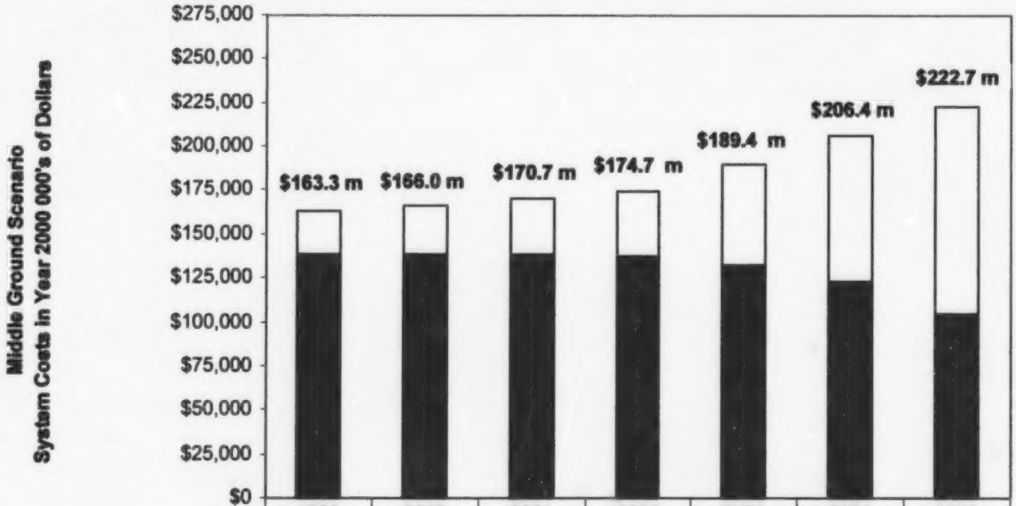


	1999	2000	2001	2002	2003	2004	2005
Total System Cost	$163,300	$166,000	$172,800	$184,600	$212,100	$236,500	$252,600
□ Organics Diversion	$25,000	$27,800	$38,100	$54,700	$105,000	$152,700	$179,400
■ Organics Disposal	$138,300	$138,200	$134,700	$129,900	$107,100	$83,800	$73,200

Figure 6 shows the projected costs for the Middle Ground scenario with key points:

- The annual cost of organics diversion programs is estimated to $118 million in 2005, a 5-fold increase compared to 2000 estimates.
- The total cost of handling both diverted and disposed organic waste is projected to total $223 million in 2005, a 36% increase compared to year 2000.
- Between 2000 and 2005, the annual cost of residential organic waste disposal is projected to decline 25% to $104 million in 2005.
- As a percentage of the total system, expenditures on organics diversion programs are projected to increase from 15% in 2000 to 53% in 2005.
- Total expenditures on organics diversion programs for the period 2000-2005 are projected to be $357 million, approximately 1.5 times greater than that projected for the Current Momentum scenario.

Figure 6
Middle Ground Scenario Cost of Organics Diversion (000's of dollars)



	1999	2000	2001	2002	2003	2004	2005
Total System Cost	$163,300	$166,000	$170,700	$174,700	$189,400	$206,400	$222,700
□ Organics Diversion	$25,000	$27,800	$32,600	$36,900	$57,400	$83,700	$118,500
■ Organics Disposal	$138,300	$138,200	$138,100	$137,800	$132,000	$122,700	$104,200

11.0 COMMENTS ON GUIDING PRINCIPLES

The Organics Task Group was asked to comment on the Guiding Principles developed by the Funding and Regulations Committee at their April 19th, 2000 meeting. This section summarizes the input provided, and stresses the areas where the general guiding principles are not applicable to organics and how they could address the organics issue and challenges.

The Organics Task Group identified the following general points, which apply to all principles discussed:

- Consumer responsibility must be part of the organics diversion equation;
- Industry is difficult to identify for a funding formula for organics;
- Municipalities need a strong incentive to divert organics, particularly where this is more expensive than landfill;
- The principle of reduction is not as relevant to organics as to recyclables and HSW.

In general, the OTG felt that reference to industry is considered more of a challenge for organics than recyclables or HSW, as some of the organic waste stream (particularly leaves, grass and garden waste) does not have a specific brand owner or industry to which it is attributable. The discussion addressed whether growers, distributors, grocery stores and food producers should be included in the industry, and how to deal with imported foods.

Comments on specific principles are presented below.

Principle 1: A long-term, sustainable funding mechanism shall be structured to provide incentives for municipalities and industry to improve the environmental effectiveness and economic efficiency of waste diversion programs within the overall waste management system.

The OTG felt that the first sentence regarding municipalities should read...municipalities should have an incentive to optimize their programs. The remainder of the sentence is not considered relevant to organics.

In general, it was agreed that municipalities need a strong incentive to divert organics, and that if landfill tipping fees are low, diversion of organics will not be cost efficient compared to landfilling, unless the funding formula provides incentives which overcome this barrier.

Principle 2: A long-term, sustainable funding mechanism shall encourage increased diversion of materials, towards the goal of 50% diversion from disposal, in a manner which is environmentally appropriate, cost effective and socially acceptable to each municipality.

The OTG would prefer that the wording "socially acceptable" be replaced with "socially responsible". There is a concern that some organic processing facilities may not be considered socially acceptable, but are socially responsible.

The wording should stress that 50% is an overall average, and that some communities will divert more, some less. Some concern was expressed that when municipalities reach 50%, they will not go beyond this target unless strong incentives are provided.

It was suggested that regional targets could be set to reflect regional conditions.

Any funding formula must recognize local circumstances, and that diversion of organics may not be economically viable or environmentally desirable in some locations. It was suggested that more emphasis should be put on broader environmental impacts of organics diversion.

The sustainable funding formula for organics needs to include operating costs.

Consumer responsibility should be included as a principle.

Principle 3: Financial responsibility for municipal waste diversion programs shall be shared among consumers, government and industry.

The Organics Task Group again wanted to stress the challenge of identifying the industry for organics.

Some OTG members wanted clarification that the service provider should not be considered an industry in this context.

The OTG agreed that the consumer is part of the equation and should be included.

Principle 4: Municipalities and industry are each responsible for the design and implementation of programs to meet their responsibilities, including financial arrangements.

The Organics Task Group would prefer the following wording..municipalities and industry are together responsible, rather than *each* responsible.

The wording for municipalities is considered reasonable, but should be clearer, to explain what is expected from municipalities with respect to record keeping for organics.

The wording for industry is addressed in Section 12.

Principle 5: The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms, which may include regulation, to meet the goals and objectives of the WDO in a timely manner, to minimize free riders and to provide a level playing field for companies competing within industry sectors. These mechanisms must recognize the diversity of municipalities and industries in Ontario and allow for maximum flexibility in the design and implementation of the programs required to meet the objectives of the WDO. These mechanisms must not disadvantage Ontario industries.

The Province of Ontario is responsible for putting in place sufficient enforcement mechanisms to ensure action on the part of municipalities and industry, and to provide a clear, predictable framework for WDO program planning and implementation.

The wording of this principle was different when originally discussed by the OTG.

12.0 POLICIES REQUIRED TO IMPLEMENT ORGANICS STRATEGY

Policy options to address the increased diversion of organics were discussed at length at three meetings of the Organics Task Group (June 5th and 27th and July 25th). Six policy options were considered as presented in Table 12.1

Table 12-1
Policy Options To Implement Organics Diversion Strategy

Policy Option	Description
#1 **Status Quo, Market Rules**	Let residential organics collection develop through market forces only, i.e. only those municipalities where it makes economic sense would move forward. Impacts of this policy reflected in Current Momentum Scenario presented in Section 3.
#2 **Provide Initial Financial Support**	Provide an Artificial Incentive to "Prime the Pump" to get organics going. The Province of Ontario could provide grants to get organics programs off the ground. Capital grants to cover part or all of the capital costs involved, plus operating grants to offset the increased operating costs of organics programs. This approach was used for recycling
#3 **Regulatory Drivers to Ban Organics From Landfill**	Regulatory Drivers Keep Organics Out of Landfill Similar to landfill bans on leaf and yard waste currently in operation in the US and Canada; landfill bans on all organics in Nova Scotia, and the fully phased-in EU Landfill Directive. Mechanisms could include municipal landfill ban and provincial legislation.
#4 **Mandate Prescriptive Level of Organics Collection Service**	Regulations could be implemented which require a particular level of service, and prescribe curbside organics collection. Existing Ontario legislation mandates collection of recyclables and half the service level for garbage, and also mandates convenient leaf and yard waste collection for communities > 50k population (curbside not prescribed).
#5 **Market Development and Market Pull**	The Province of Ontario could put procurement specs in place which require compost from residential organics programs to be used in construction projects (e.g. slope rehabilitation in new road construction); a price preference could be specified.
#6 **Financial Incentives**	Financial incentives such as surcharges on loads of leaf and yard waste and other organic material to encourage increased diversion. Diversion credits to incent municipalities to divert more organics.

The first conclusion from the discussion is that some type of regulation was considered essential to achieve 50% diversion. If the Province wants to achieve 50% diversion, it is not considered realistic to let the market decide on the level of organics diversion to be achieved. The 50% diversion target can not be achieved by 2005 if the "cheapest way" is chosen, and this is what happens when the market rules. Legislative supports are therefore essential to increase the recovery of residential organic waste substantially, and IC&I organic waste could or should be regulated as well.

A policy of mandatory service levels for organics collection was not considered favourable by some OTG members from the municipal sector. However, at the July 25, 2000 meeting, a resolution supporting this approach was adopted.

The strong preference of the group among the six policies presented was to implement a strategy of landfill bans coupled with market development policies to create a demand for the end product from organic collection and processing programs. Landfill bans on organics are seen as a necessary element of a strategy to divert significant quantities of organic material from disposal. Private sector companies who own and operate landfills have expressed serious concerns about the enforceability of landfill bans. They feel that enforcement will be difficult and needs to occur at the curb. This complicates and slows down the collection process, thereby increasing collection costs. Municipal OTG members also expressed some concerns about landfill bans, and felt that landfill surcharges on loads with organic material would provide an economic incentive to divert more.

Implementing a ban on leaf and yard waste across particular regions of Ontario is considered an appropriate first step in a comprehensive organics ban from landfill. This can be extended to cover additional organic materials in the future. Both of these policies have been implemented elsewhere, and Ontario can observe the level of success with these approaches. A comprehensive ban on leaf and yard waste has been implemented in a number of US states, and has resulted in a substantial increase in the number of composting sites throughout the country, and the amount of organic waste diverted from landfill.

The initial ban on leaf and yard waste could be extended at a future time to cover all organic waste. Again, this policy has been implemented elsewhere, therefore there is experience to draw on in this regard. A comprehensive ban on all organic waste from landfill is in place in Nova Scotia, and will be slowly phased in, in Europe, through implementation of the EU Landfill Directive over the next 7-10 years.

A ban on leaf and yard waste may not work in Northern Ontario, and will not work at unsupervised landfills, but these accept a small percentage of the total waste handled, and therefore non-compliance will not have a significant impact on the amounts of waste diverted.

Policies such as surcharges on leaf and yard waste (e.g. Orillia charges double tipping fee for leaf and yard waste) could also be considered and might work equally well to divert organic waste from disposal. These approaches offer financial incentives rather than legislation.

Some US states do not offer recycling grants unless user pay systems are in place. This option could be considered by the Province of Ontario if any granting is to be carried out by the province in the future.

At the July 25th OTG meeting, members agreed that user pay is a good incentive to force the behaviour change needed to recover organics, but mandatory user pay imposed by the Province as a condition of funding is not supported. In fact, representatives from GTA municipalities expressed concern about user pay as part of the strategy, stating that it may be a considerable amount of time before it will be accepted in some municipalities.

13.0 FUNDING FORMULAS AND INCENTIVES REQUIRED

The mandate of the WDO is to develop a long-term sustainable funding formula to reach the 50% diversion target. Increasing the diversion of residential organic waste plays a significant role in reaching this target.

It is acknowledged that organics are different to the other materials being addressed by the Programs Committee (recyclables and household special waste).

About 34% of the organic waste stream is leaf and yard waste, for which a brandowner is not readily identifiable. The possibility of obtaining funding from seed and fertilizer companies for the grass and yard waste portion of this waste stream was discussed by the OTG and was dismissed as being unreasonable and unworkable.

An additional 50% of the organics stream is food waste, which would be difficult to identify by specific brandowner. Different approaches were discussed by the OTG, including a levy on all food products. This was supported by the majority of OTG members, and was passed as a resolution at the July 25, 2000 meeting.

It is considered important to assign some consumer responsibility for food waste in the garbage stream, to make consumers aware of the choices which increase the amount of food waste in the garbage. User pay systems are one mechanism which would be effective in this regard, as manufacturers or brandowners have limited ability to influence waste quantities in the food portion of the organic waste stream.

The remaining 16% of the organics waste stream is household and sanitary papers, for which brandowners can be identified.

Therefore, given the apparent lack of a brandowner responsibility for funding the full organics recovery system, most of the costs will need to be split between the province, municipalities, and consumers.

The funding formula to be considered needs to have two components:

- Start-up funding to put the systems in place, and
- On-going operating funding to solve any cash flow problems at the municipal level.

For an organics funding formula, it is acknowledged that *one size fits all* does not work, and the formula must take local circumstances into account.

There is a concern that the $59 million estimated "incremental cost" is based on tip fees, and that municipalities may loose a lot of revenues as a result of organics diversion strategies. Tipping fees do not reflect true costs, particularly for municipalities who own their own landfills. These revenue losses must be taken into account.

The financing strategy will need to look at what it would take to motivate stakeholders to participate, and motivate industry to support the IC&I composting infrastructure. This will lead to more economies of scale, particularly if both IC&I organic waste generators and municipalities can share processing facilities.

There are limitations to the approach of tying the funding formula to the cost of disposal because this fluctuates, therefore a strategy is required to deal with this also, but was not discussed by OTG at length, as it was considered essential to get commitment from the Province of financial support before any details were worked out.

Some type of incentive based funding formula is likely to have the highest chance of success. If the Province wants a 50% diversion target, then municipalities want the Province to assist with start-up costs for organics systems, and also on-going operating costs, if these are greater than handling the material as garbage. Because disposal costs vary over time, the funding formula would need to be revisited as the cost of disposal varies. Incentives should also be given to the private sector to divert more organic waste as part of the strategy.

Diversion credit systems could also be considered, to provide incentives to reach higher diversion targets.

If every tonne over a base level receives a financial return, on a sliding scale of kg/capita to landfill, and each municipality is assured that they can get more dollars as more organic waste is diverted, this would provide municipalities with the base of funding and financial security required to move the organic diversion issue forward. In some cases, the funding formula should be left to the individual municipality to negotiate their individual situation with the Province.

Carbon credits, which may be available if carbon trading becomes a reality in Ontario and elsewhere, may also help to offset some of the costs of the system.

14.0 SCHEDULE

The schedules required to meet the three scenarios considered in this work are presented in Section 3.

The roll-out strategy for the Middle Ground Scenario, which is the scenario considered achievable within the 5-year timeframe, is considered very ambitious, and a significant challenge, because of the substantial change required to collection systems, and the need to educate the public on the behaviour changes required.

The roll-out strategy will depend to some extent on timing of contract renewals, and incentives provided to municipalities by the WDO in the future. Members of the Organics Task Group indicated that existing contracts run anywhere from one to five years into the future.

At least one to two years of planning is required to implement an organics system. If a Certificate of Approval is required for a new composting facility, and siting of the facility has not started, a one to two year timeframe may be required. The new Permit by Rule regulations currently under consideration by the Ministry of Environment should shorten the time required for a Certificate of Approval significantly, but are not in place at this time.

Siting of composting facilities remains a challenge, therefore the strategy should focus on maximizing the use of existing facilities where possible. The location, available capacity and ability to take residential food waste must be identified for all Ontario facilities through a WDO funded research project awarded to AMRC.

Multi-family organics programs can only be implemented when mixed waste composting capacity is constructed in large urban areas of the Province. Assuming that these plants would require 24 months for design, siting, approvals and commissioning, the earliest that these could realistically be operating would be in year 2003. The economics of this approach, which is very high on a per tonne basis, need careful consideration.

15.0 ROUND 1 AND 2 PROJECTS APPROVED FOR FUNDING BY ORGANICS TASK GROUP

Table 15.1 presents a list of the projects funded by the Organics Task Group in Rounds 1 and 2 of WDO Funding.

Table 15.1
Organic Projects Funded by WDO Rounds 1 and 2

Round 1

Project #	Municipality/Organization	Project Name	WDO Funding
ORG-R1-01	City of Peterborough	Compost facility siting study	$ 15,000
ORG-R1-02	Township of Augusta	BYC Composting Study (Task 2)	$ 2,700
ORG-R1-03	City of Toronto	Multi-family waste facility	$ 35,000
ORG-R1-04	Region of Peel	BYC sales in schools	$ 10,000
ORG-R1-05	Dufferin County	Impacts of user pay on organics collection	$ 25,000
ORG-R1-06	AMRC	Workshop Proceedings	$ 5,000
ORG-R1-07a	City of Orillia	Compost Markets Development	$ 5,800
ORG-R1-07b	City of Orillia	Compost Packaging	$ 5,000
ORG-R1-08	City of Guelph	Glass grinding technology	$ 6,010
ORG-R1-09	Quinte Waste Solutions	Multi-family organics source separation	$ 13,000
ORG-R1-10	City of Sault Ste. Marie	Waste Management Master Plan	$ 10,000
0RG-R1-11	City of Woodstock	Backyard Composting Study	$ 12,900
0RG-R1-12a	Region of Waterloo	92/93 Backyard Composting Survey Update	$ 4,500
ORG-R1-12b	Region of Waterloo	Compost Markets	$ 6,000
ORG-R1-13	Regional Municipality of Niagara	Co-collection Study	$ 50,000

Round 2

ORG-R2-01	AMRC	Policies and Legislative Options to Optimize Residential Organics Diversion	$6,000
ORG-R2-02	AMRC	Organics Processing: Current Capacity and Options	$11,500
ORG-R2-03	Amprior	Backyard Compost Useage Survey	$2,600
ORG-R2-04	Composting Council	Rules and Networks	$52,500
ORG-R2-05	Composting Council	Composting Awareness Week	$30,000
ORG-R2-06	Halton	Solid Waste Management Strategy	$10,000
OPT/ORG-R2 01	Markham / Toronto	Automated Cart-Based Collection System for Organics, Garbage and Recyclables	$60,000
OPT/ORG-R2 02	Markham / Guelph	Baseline Sampling of Material Densities	$4,650
ORG-R2-07	Orillia	Phase Two Expanded Organics Collection	$11,500
ORG-R2-08	Ottawa	Apartment Mixed Waste Processing Pilot (test Conporec's facility)	$22,500
ORG-R2-09	Ottawa	Market Development for L&YW Compost in Field Application for Production of Fruits & Veg.	$7,500
ORG-R2-10	Ottawa	Market Development for L&YW Compost in Greenhouse & Nursery Production	$7,500
ORG-R2-11	Ottawa	Market Development for L&YW Compost on Golf Courses	$7,500
ORG-R2-12	OWMA	Organic Waste Symposium	$2,500
ORG-R2-13	City of Peterborough	Exploration of Options for Organics Collection	$15,000
ORG-R2-14	Quinte Waste	Residential Depot Organics Collection Project	$15,000
ORG-R2-15	Sequin Township	Curbside Collection of Kitchen Organics Demonstration	$4,200
ORG-R2-16	Simcoe	Seasonal and Urban-Rural Organic Waste Composition & Survey	$4,020
OPT/ORG-R2-03	Sudbury	Construction of L&YW Composting Pads	$75,000
ORG-R2-18	Toronto	Overcoming commercial barriers to development of organic material diversion facilities	$30,000
ORG-R2-19	Victoria	Expanded leaf and yard waste composting program	$10,000
ORG-R2-20	Waterloo	Composting emissions study	$20,000
ORG-R2-21	York	Plastic Film Extraction from a Processed Municipal Organic Residual Stream	$75,000

Table 15.1
Organic Projects Funded by WDO Rounds 1 and 2

Round 1

[illegible]	[illegible]	[illegible]	WDO Funding
[illegible]	City of Peterborough	Compost facility siting study	$ 15,000
[illegible]	Township of [illegible]	BYC Composting Study (Task 2)	$ 2,700
[illegible]	City of [illegible]	Multi-family Waste Study	$ 35,000
[illegible]	Region of Peel	BYC sales in schools	$ [illegible]
[illegible]	[illegible] County	Impacts of user pay on organics collection	$ 25,000
[illegible]	AMRC	Workshop Proceedings	$ [illegible]
[illegible]	City of [illegible]	Compost Markets Development	$ 5,800
[illegible]	City of [illegible]	Compost Packaging	$ 5,000
[illegible]	City of [illegible]	Leaf grinding technology	$ 6,310
[illegible]	[illegible]	Multi-family organics source separation	$ [illegible]
[illegible]	City of [illegible]	Waste Management Master Plan	$ [illegible]
[illegible]	City of [illegible]	Backyard Composting Study	$ [illegible]
[illegible]	Region of Waterloo	[illegible] Backyard Composting Survey Update	$ 4,500
[illegible]	Region of Waterloo	Compost Markets	$ 6,000
[illegible]	Regional Municipality of Niagara	Co-collection Study	$ 50,000
		Total Funding ORG Round 1	**$ 190,910**

Round 2

[illegible]	AMRC	Review and Legislative Options to Optimize Residential Organics Diversion	[illegible]
[illegible]	AMRC	Organics Processing: Current Capacity and Options	[illegible]
[illegible]	[illegible]	Backyard Compost Usage Survey	[illegible]
[illegible]	[illegible]	Rules and Networks	[illegible]
[illegible]	[illegible]	Composting Awareness Week	[illegible]
[illegible]	[illegible]	Food Waste Management Strategy	$10,000
[illegible]	[illegible]	Automated Cart Based Collection System for Organics, Garbage and Recyclables	[illegible]
[illegible]	[illegible]	Baseline Composition of Material Delivered	[illegible]
[illegible]	[illegible]	Phase Two Expanded Organics Collection	[illegible]
[illegible]	Ottawa	Apartment Mixed Waste Processing Pilot and Composting Facility	[illegible]
[illegible]	Ottawa	Market Development for L&YW Compost in Field Application for Production of Fruits & Veg	$2,500
[illegible]	Ottawa	Market Development for L&YW Compost in Greenhouse & Nursery Production	[illegible]
[illegible]	Ottawa	Market Development for L&YW Compost on Golf Courses	$7,500
[illegible]	OWMA	Organic Waste Symposium	$2,500
[illegible]	City of Peterborough	Exploration of Options for Organics Collection	$15,000
[illegible]	Quinte Waste [illegible]	Residential Depot Organics Collection Project	$15,000
[illegible]	Seguin Township	Curbside Collection of Kitchen Organics Demonstration	$4,200
[illegible]	Simcoe	Seasonal and Urban-Rural Organic Waste Composition & Survey	$4,020
[illegible]	Sudbury	Construction of L&YW Composting Pads	$75,000
[illegible]	Toronto	Overcoming commercial barriers to development of organic material diversion facilities	$30,000
[illegible]	[illegible]	Expanded leaf and yard waste composting program	$10,000
[illegible]	Waterloo	Composting emissions study	$20,000
[illegible]	York	Plastic Film Extraction from a Processed Municipal Organic Residual Stream	$75,000
		Total Funding ORG Round 2	**$474,470**
		Total Funding ORG Rounds 1 & 2	**$665,380**

16.0 CONCLUSIONS AND RECOMMENDATIONS

The Organic Task Group concluded that to reach a 50% diversion target, the following systems would need to be implemented:

- a comprehensive curbside[6] residential organic waste diversion program[7] to service all urban single-family households in Ontario[8], and
- waste from about half of the multi-family households in the Province must be processed through mixed waste processing plants.

A five year time frame is not considered realistic to achieve this target, for a number of reasons including timing of contracts, the need for siting, approval and construction of new processing facilities, etc. This strategy would also need considerable legislative and financial support.

A scenario which diverts about 845,000 tonnes of organics per year (compared to current levels of 393,000 tonnes) is considered aggressive, but achievable within the five year timeframe, as long as the appropriate legislative and financial supports (discussed elsewhere) are in place.

The Organics Task Group identified numerous areas of research which are required to refine the preliminary estimates presented in the five year strategy, and address issues which could not be fully answered at this time. Some of the key questions which will require on-going research, and should form the workplan of any future WDO include the following:

Compost Markets: If a comprehensive organics diversion strategy is rolled out in the Province of Ontario, significant additional amounts of finished compost will be available on the marketplace. It is essential to secure markets for this material to sustain the composting industry and therefore the long-term financial viability of any organics strategy. Issues which will need to be addressed on an on-going basis will include market development strategies through approaches such as government procurement practices, research into alternative uses and markets for finished compost, development of compost product quality standards and assessment of market capacity, and price sensitivity on a region by region basis.

Processing Infrastructure Development: There is not sufficient processing capacity in the Province of Ontario at this time to process the amount of organic waste which would be recovered through the various strategies considered. One of the challenges to any strategy will be to develop the processing infrastructure (both aerobic composting and anaerobic digestion) through construction of processing capacity throughout the Province.

Technical Barriers To Compost Processing: A number of technical barriers to enhanced organics diversion, including issues such as removal of plastic from finished compost, and also effective bag breaking equipment to remove plastic from incoming organics streams need to be resolved to improve the quality of finished compost and therefore secure market outlets and increase revenues.

Collection Challenges: Cost effective and efficient collection of residential organics is one of the keys to successful implementation of programs throughout the Province. Each community needs to identify the system that meets their own needs, while learning from the experience gained in other communities. WDO should continue to support pilot collection programs as the first step in comprehensive system implementation. On-going research should continue to identify cost efficient and publicly acceptable ways of collecting residential organic materials for diversion.

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[6] Curbside collection is the only approach which will reach the high recovery levels per household required to recover the tonnage necessary to reach the 50% target.

[7] to include household food waste, as well as leaf and yard waste

[8] in communities of 5,000 population or greater

Public Behaviour Change: Diversion of organics is more complex than diversion of dry recyclables from the public perspective. The material involved is wet, and can become odorous if not handled properly. Many communities have found significant resistance to the behaviour change required to source separate organics, and properly set them out at the curb. On-going research is required into the mechanisms required to get people to change their behaviour and fully participate in the organics collection system, and actions which can be taken at the system design stage to facilitate this behaviour.

Policies Required to Enhance Diversion of Organics: It was concluded by WDO committees that a number of policies were required to ensure participation in the organics system to the level required to achieve significant diversion values. Policies such as landfill bans, bag limits, user pay and regulated mandatory service levels were all considered in preparation of this report. On-going research is required into the impacts of each of these policies on the amount of organics diverted.

Multi-Family Organics: The WDO Organics Task Group recognizes the difficulty of source-separating organic materials from multi-family waste, particularly in older buildings where space is not available and the waste management system is not designed to handle source separated streams. For this reason, the strategy has been developed assuming that mixed waste processing is the only viable approach to diverting organic waste from multi-family buildings. Cost estimates carried out to develop the 5-year strategy indicate that this is a very high cost approach to diverting organic waste. The WDO has funded research to test source separation of multi-family waste and also to assess the technical and economic viability of mixed waste processing of multi-family waste to recover organics, but a number of questions remain unanswered at this time. Significant additional research is required to identify ways to address organic waste from multi-family households.

Backyard Composting: On-going research is required to identify the appropriate role of backyard composting in a comprehensive organics diversion strategy, including reasonable estimates of the actual costs of running backyard composting programs, the diversion results which can realistically be achieved by backyard composting in the long term, appropriate supports required to sustain backyard composting programs in the long term (levels of promotion and education, and technical support, etc.), and the impacts of various policies (bag limits, user fees, etc.) on the costs of backyard composting and on the levels of diversion achieved.

Residential Organics System Costs: The cost estimates developed in the Five Year Strategy presented in Section 10 of this document are based on very preliminary estimates obtained from a number of sources. Significant additional research is required to refine these estimates by collecting more comprehensive data on existing and planned organics programs, and identifying the best available cost projections for future organics programs.

Net Environmental Impacts of Organic Waste Diversion: An integrated approach to identifying the optimal waste management system, community by community, is required to make the best decisions on how organic and other elements of the waste stream are managed in Ontario. This should form one of the on-going efforts of the WDO.

WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

Programs Committee:
Household Special Waste Task Group

Interim Five-Year Plan

To Increase Diversion Of HSW To Contribute To The Provincial 50% Diversion Objective

16 August, 2000

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WDO PROGRAMS COMMITTEE
HOUSEHOLD SPECIAL WASTE (HSW) TASK GROUP
Five Year Plan

Recommendations and Options for HSW Management & Financial Strategies For The Province of Ontario

1.0 INTRODUCTION

The recommendations and options developed in this document were the result of eight daylong task group meetings and three sub-task group meetings. In addition to these meetings, many hours of review and consultation between members of the task group in preparation for the meetings took place.

The strategy developed by the HSW Task Group is presented in this document. They are intended to guide the development of a long-term sustainable funding formula to support Household Special Waste (HSW) Programs in the Province of Ontario.
These guiding principles are developed in accordance with Part IV "C" and "D" of the Memorandum of Understanding (MOU) setting out the goals and objectives of the Ontario Waste Diversion Organization.

The parties to the MOU have confirmed their continued commitment to reduction, reuse, recycling and treatment of residential wastes towards Ontario's goal of 50% waste diversion from landfill. Given that HSW comprises significantly less than 1% of residential solid waste; and that some constituents of HSW cannot be reused, recycled, or collected through residential waste or recycling programs, the focus of their management is to:

- First minimize the generation of such waste
- Second provide for its safe and efficient treatment, and only then
- Ensure environmentally sound management of the remainder, and

Given that a transition period is required to provide adequate time for:

- A suitable definition of HSW to be agreed upon by stakeholders
- Manufacturers to reformulate products where possible
- Elected officials to educate their constituents and to modify current waste management policies and practices
- Manufacturers, municipalities and NGO's to educate consumers/residents to modify their product use and waste management practices
- Development of appropriate infrastructure and programs

The municipal and industry sectors represented in the WDO have agreed that the materials classified as HSW should be managed in a cost efficient and environmentally sound management system. They have agreed:

- The costs of managing these materials should be shared equitably among the responsible parties

- The program will require acceptable backdrop regulation to ensure participation and a level playing field.
- The program requires a schedule of materials classified as HSW through scientific criteria, to be fundable through the WDO program

2.0 HSW GENERATED and RECOVERED IN ONTARIO

The estimated amounts of HSW generated from the municipal residential sector currently disposed are shown in Table 1. These numbers are for planning purposes and require further research through waste compositions to confirm and narrow the ranges.

Data on how much HSW are "in the system" is not available. Estimates have been made on the basis of waste composition studies conducted over the past two decades that report from 0.5 to 1% of MSW to be HSW. It should be further recognized that current data reflects the collection of some materials that are not appropriately categorized as HSW or HHW.

Estimates of recovery by the task group are limited by the data available. Estimates have a range of 10% to 30% with the task group estimating a 20% recovery of HSW "in the system".

TABLE 1: ESTIMATED QUANTITIES OF HSW WASTE BY HOUSEHOLD TYPE IN ONTARIO 1999

	Residential Totals
# HH IN PROVINCE (1)	4,238,000
WASTE GENERATION RATE (t/hhld/yr)	1.003
WASTE GENERATED (tonnes/year)	4,250,714
% HSW of WASTE GENERATED (2)	0.5% to 1%
RANGE HSW GENERATED (tonnes/year)	21,250 to 42,507
RANGE of HSW GENERATION BY HH (kg/hhld/year)	5.014 to 10.03
HSW DIVERTED (3) (Tonnes/year)	6,360
RANGE of HSW DISPOSED (Tonnes/year)	15,050 to 36,307
RANGE of RECOVERY %	15.0% to 29.9%

1) Municipal 3R's In Ontario: 1998 Fact Sheet
2) Waste Compositions (London, Quinte) and Literature Search
3) Municipal 3R's Data call for 1999

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3.0 CAPITAL COSTS

The HSW Task Group has developed and catalogued Ontario HSW Programs and under-serviced areas (Appendix A). The HSW Task Group has also recommended permanent depots for WDO funding in 2000 based on these maps and their most likely fit into a long-term plan.

WDO HSW Depot Funding Approvals – Year 2000

The WDO approved nine new depots in Ontario with a total capital cost of $319,000. The priority for the establishment of depots was locations in under serviced areas of the province. These locations are noted in Appendix A on the attached maps.

Future Capital Needs

The attached maps in Appendix "A" highlight the existing HSW collection infrastructure and proposed new sites. Opportunity exists to integrate new access to HSW collection with the existing infrastructures through lower cost satellite depot sites and/or the establishment of event days. It is evident from the current service maps that additional service is required with potential new depot sites to be identified. The committee did not estimate future capital costs and needs as the timeframe and resources to accomplish this task were limited.

The main issues discussed by the task group were:

- Defining the minimum level of access for HSW collection and possible regulations that ensure the opportunity for HSW collection (e.g. Blue Box programs – populations over 5,000 must provide service for source separation programs)
- Minimizing capital invested considering the long-term vision is to reduce the amounts of HSW collected to those residuals needing care through definition and the **B**uy responsibly, **Use** it up and **D**ispose of what is left responsibly (BUD Communications Program)
- The inclusion of capital funding for new infrastructure in the funding formula

There is recognition by the task group of a specific need to bring municipal HSW Management programs up to a specific level of service through regulation and standards.

The task group through resolution agreed:

- That the province should fund new municipal depots and capital through its infrastructure funding programs
- Capital in current HSW management programs will be funded by WDO through the amortization of capital costs in existing municipal HSW depots and contracted programs (e.g. event days)

4.0 HSW SYSTEM COST ESTIMATES

Assuming a HSW cost of between $920 and $1,600 per tonne from the GTA Region (AMRC 1999 estimates) and a mid-size municipal cost of $2,160 per tonne (AMRC 1999 estimates) the estimated range of costs of the Ontario HSW System have been estimated Table #2.

GTA costs have been weighted at 70% of total system costs to account for the bulk of HSW collection in large urban centres. A preliminary report from the WDO Cost Study of municipal HSW programs was received in early July and is summarized below.

Based on the collection of 6,360 tonnes of HSW in 1999, the cost of all programs reporting or estimated is at $8 million. The average cost per tonne is calculated to be $1,258/tonne.

Summary of WDO Data Call for HSW Management Systems

The preliminary results for the WDO Data Call to estimate the cost of provincial HSW programs have been completed.

It was reported that 50 of the 107 municipalities in the data call reported HSW program costs. An additional 23 reported that they do not offer HSW management programs.

Adding in the cost of HSW programs for the municipalities reporting and for two major programs (Peel and York Regions) that estimated costs, were added in and brought the total estimated cost to $8 million. Additional costs will have to be added to reflect the costs for programs that did not provide data, and for those programs that were not included in the data call.

Cautionary notes indicate that there are some municipal programs that may be added to the costs in the report. The inclusion of capital costs is not clear although six municipalities did report they do not include any capital costs in their reported costs.

The report also indicates that a number of municipalities still do not prescribe full cost accounting to their programs. Numerous reasons for not tracking capital costs were indicated including:

- Other departments track
- Not part of program costs
- No capital costs because the assets were purchased outright at the start of the program
- Grants were used to purchase the assets

The report indicates a reasonable level of confidence in the costs reported by participating municipalities.

Table #2

Ontario HSW System – Cost/Tonnage Estimates

	Total Tonnes Collected Ontario	GTA Urban Centres @ $920/tonne A	Large Urban Centres @ $1,600 tonne B	Other Municipal Centres @ $2,160 tonne C	Range of System Costs Low Range = A+C High Range = B+C
Estimated 1999 Recovery	6,100 tonnes (21% recovery)	$4 M	$7 M	$4 M	$8 to $11 M
10% Annual Growth Rate to 2005	9,800 tonnes (33% recovery)	$6 M	$11 M	$6 M	$13 to $17 M

M – millions

Key Assumptions:

1. HSW generation is 0.71% of total residential waste = 30,000 tonnes.
2. Generation rate assumed to be constant through 2005.
3. GTA municipalities account for 70% of total quantities recovered with the remaining 30% from other communities.
4. Capital costs not included.

5.0 ESTIMATED RECOVERY TO 2005

The tonnage recovered in HSW programs is expected to increase over the next five years due to:

- Funding support for operations and increased access to programs
- Communication and education programs that divert HSW products from landfill and sewage systems.

There is no history the task group can draw on to predict the impacts of the above changes. The task group's best estimates are 10% annual growth to 2005. It is estimated that by 2005 the tonnage collected will be approximately 9,800 tonnes. These estimates are based on the existing mix of residuals collected and are not moderated by the BUD communications program that will be implemented and the definition of HSW materials to be collected.

6.0 POLICIES REQUIRED TO SUPPORT & IMPLEMENT A LONG TERM HSW STRATEGY

This section deals with policies and regulations that may be needed to support the sustainable recovery of HSW from the municipal residential waste stream over the next five years. This also includes policies that support industry participation in the long-term strategy.

Access To HSW Collection

A number of approaches can be taken to provide citizens with access to HSW collection facilities. These are costly but essential programs to ensure the health, safety and environment of citizens and the municipal waste management system.

Policy Approach to Access Options:

i. **Status Quo:** Let HSW residential collection be provided where municipalities decide to establish the service. Currently Household Hazardous Wastes are exempted from generator handling and disposal requirements at the point that they are generated (e.g. in the home) by Regulation 347 under the category Domestic Waste.
ii. **Regulatory Approach**: Provincial regulation requiring a level of service for materials defined as HSW for populations (criteria to be determined). Currently there is no regulation in place.
iii. **Financial Support Approach**: Municipal programs are provided with up front capital to establish HSW programs for a specified list of materials. This could be through number options including infrastructure grants by the province or capital funding through the WDO.

By resolution the HSW Task Group preferred "Option ii - Regulatory Approach" to have some level of responsibility on municipalities to collect HSW with criteria to be developed for access.

Definition of HSW

The definition of HSW (Appendix B) had been started through the IMPPS process and is a list of criteria noted in Schedule A. Schedule "A" criteria are currently being addressed by a Canadian Standards Association (CSA) Task Group. The results of this work will undergo a peer review process and are not expected for 12 to 18 months.

The definition in criteria terms is intended to inform manufacturers and brand-owners whether or not their products are subject to regulation (and provide a legal basis for enforcement).

A companion communication would be used to inform the public and municipal staff on the recognition of program materials (e.g. symbols and information on product labels already required by federal regulations).

Municipalities are service-oriented organizations and require facts from industry on assisting them to refuse non-HSW products and empty packaging from HSW Management programs.

The WDO HSW Task Group formed an industry/municipal sub-task group to propose a schedule of "what's in and what's out" for the initial rollout of the WDO HSW support and communication program based on the interpretation of scientific criteria.

The schedule in Appendix B will become the defined list of materials for management in Ontario HSW Programs. This list will define the HSW communications programs and funding program by industry and municipalities.

The sub-task group as part of these discussions agreed on the following:

- The definition of HSW and ongoing assessment of what's in the program is critical to provide incentives to brand owners to reformulate and move their products into less costly treatment options.
- Empty containers should not be accepted and can be treated through current recycling and disposal systems (e.g. empty aerosols and paint cans can be recycled in the curbside recycling programs).
- An ongoing review process to review the HSW list be implemented and take place annually and at the end of the five year plan.
- The CSA process coupled with the Consumer Chemical Container Regulations (CCCR) bring about labeling changes that simplify identification and disposal of HSW products for municipal staff and consumers.
- The CSA process which deals with scientific criteria result in national standards for HSW that will be adopted by the provinces.
- The HSW definition process also meets the overall objective of reducing what HSW programs safely collect to only those products requiring special care.
- Voluntary industry recovery programs (e.g. rechargeable batteries – Rechargeable Battery Recycling Corporation), which choose to recover their products through their own collection systems, will not be included in this list for funding purposes.

Industry Participation – Level Playing Field

The task group has made it perfectly clear from an industry and municipal perspective that a voluntary program will not work for the majority of industry sectors involved in HSW. All task group members fully support "backdrop regulations" to ensure full and fair participation by all industry players in the HSW system. Listed below are two options that the task group has identified as options.

The regulations would be intended to address all brand-owners who sell or distribute products in Ontario to ensure that they participate in the HSW program, carry financial responsibility, and meet the performance standards in the system.

Example of Two Level Playing Field Regulations

Quebec Paint Regulations

One option that gives manufacturers a choice is demonstrated in the Quebec Paint Regulations (QC 655-2000 Gazette June 14, 2000, Vol. 132, No. 24. This regulation sets clear standards for all manufacturers and marketers of paint in terms of recovery, data, level of service, registration and communications programs. Businesses must file their recovery plans with the government in a specified time and can be subject to fines up to $250,000.

A business can be exempt from the above provisions if it is a member of an approved organization whose function is to recover specified residual materials and has an agreed to plan filed with the government. It is assumed that the choice of belonging to an approved organization that has an agreed upon plan is more efficient for most businesses to support.

Industry Municipal Partners for Product Stewardship (IMPPS) Draft Regulation

Another option tabled by the industry group through the IMPPS process has been previously presented to the task group and is similar to the Quebec regulation. The proposal only regulates what action is required and by whom, but does not regulate how an objective is to be achieved, and guarantees performance by all players in the system.

7.0 FUNDING FORMULAS AND INCENTIVES REQUIRED

Assuming the net cost of HSW programs across the province will be calculated annually and the WDO provides financial support up to 50% of the net cost.

Collecting municipal and industry funding

The HSW principles state each is responsible for the collection of their share of funds.

Collecting Industry's Share

Industry has committed to conduct separate meetings to discuss their options for collecting funds. Some of the options may include charges levied at retail and shown on the register tape, brand owner levy, or one-time fees to build a legacy fund. Industry will report back to the WDO on its deliberations and its decision on HSW.

Currently industry has identified two options that can be described as brand-owner focused, and another that is retail focused.

Cost of Basket of Goods or Cost of Specific Streams

In addition to a collection mechanism some options to collect funds may or may not address differences in costs to deal with various material streams. Two options that have been identified:

- Cost of Basket of Goods for all material categories collected with one fee/levy. This is considered administratively simple to manage but may not provide an incentive for manufacturers of hard to manage products to make changes to their products to lower costs.

- Category specific fees to account for the wide difference in disposal fees between materials. This rewards manufacturers whose products are amenable to low cost treatment options, through a number of strategies including reformulation and consumer education. This option however is administratively complex.

Municipal Share

Municipalities currently pay for the total net cost of the HSW system. Under the HSW principles municipalities have the responsibility for raising their funds and method. The collection of these funds is commonly through the municipal tax base and other municipal revenues such as landfill tip fees. The opportunity for HSW user fees is minimal and has been unsuccessfully applied on the HSW stream in one municipality (Quinte) with a severe drop off in HSW materials collected. The suggested approach would be to have overall MSW programs (i.e. user fees, bylaws, bag limits) in place to encourage diversion from the system, with a reduction for recyclables and HSW. This would discourage dumping and hiding HSW in regular trash.

How to pay out funds

- The municipal funding model should recognize with incentives - best practices that reduce overall long-term system disposal costs through reuse programs, access criteria, collection of targeted materials only, innovative C&E through BUD and other incentives the task group can identify.

How to share costs between municipalities and industry

Based on the WDO principles the costs are to be shared and this may be assumed to be up to 50% WDO funding.

The task group has examined three options:

- Functional Split Model
- Shared Model
- Shared 50/50 Model

After examining the Functional Split and Shared Models, the task group decided to develop the "Shared 50/50 Model". This model incorporates specific industry and municipal concerns:

- Municipalities for funding equity over the longer term as HSW disposal costs are reduced by various reuse and recycling activities in HSW management programs
- Industry for funding a defined list of HSW products and for having a greater degree of input in disposal and program costs.

The following model options were examined:

Functional Split Model:

- All budgets based on previous years costs
- Municipalities would be responsible for funding all collection and administration functions including capital
- Industry responsible for funding all post-collection treatment of residuals
- HSW definition required – what's in what's out has been produced for year 1 of the program and is found in Appendix B

Shared Model:

- All budgets based on previous years costs
- All administration, collection and disposal costs shared equally
- BUD communications program shared 50/50 by all waste streams and based on program size by population
- Capital not included except for new programs and re-engineering for cost reduction
- Performance incentive for municipal reuse and innovative reuse programs
- HSW definition required – what's in what's out has been produced for year 1 of the program and is found in Appendix B

Shared 50/50 Model (preferred task group model):

- All budgets and plans based on previous years costs.
- Budget determines WDO industry funding program, which will be 50% of Total HSW program costs.
- System costs quantified to define and develop respective plans to deal with introducing cost efficiencies,
    - Elements of Collection/Administration, post-collection treatment and disposal broken out and declared. These costs include amortized capital.
    - Municipalities responsible for collection/administration/post collection treatment system – focused on reducing these costs.
    - Industry responsible for disposal costs – focused on reducing these costs.
    - Communication and Education programs shared 50/50
    - Any differential between collection/administration and disposal costs at year-end will be equalized between industry and municipalities. This will be accomplished by dividing this differential equally to achieve a final 50/50 share of total HSW system costs as program collection and disposal costs change and evolve. The main principle is the sharing in costs and benefits as the program evolves
- The most appropriate performance factors need to be determined by the task group
- HSW definition required – what's in what's out has been produced for year 1 of the program and is found in Appendix B

Incentives

The task group due to data restrictions and time limitations agreed that further research was required by the WDO to determine the appropriate incentive(s).

Some incentives that the task group proposed for further research and for all of the above funding models are:

- Costs or cost efficiency
- Public Access and use of programs
- Reduction of collection of non-HSW non-hazardous materials and diversion of them to more appropriate treatment options
- Measured increases in re-use of materials and energy recovery

8.0 PLANNING ISSUES

These activities will be accomplished through the stakeholders to support the establishment of the five-year plan and the financial support program. These are issues that require further study and data to support the five-year plan and the goals and objectives that support the HSW vision:

Immediate short term planning issues to support the financial support program:

- Determine the most appropriate incentives to promote efficiency
- Standard RFP's and best practices for tenders and contracts
- Standard accounting and data information to assist in identifying cost reduction opportunities and to assist in benchmarking activities
- Definition of HSW – Canadian Standards Association (CSA) – Develop interim schedule for Year 1 and a process to assess beyond year 1

Longer term planning issues

- Cost benefit analyses of HSW programs to be conducted during the first five year period
- Review of role of limited level of competition in the waste management industry on disposal costs

9.0 CONCLUSIONS AND RECOMMENDATIONS

The recommendations made in this report will be submitted to the Funding & Regulation and Programs Committees for their consideration and their report to the WDO Board on August 9, 2000.

The final WDO Board report will be submitted to Ministry of Environment on September 1, 2000.

The following lists the final key resolutions endorsed by the task group at its July 24, 2000 meeting to support the establishment of a HSW Management and Funding program.

The following resolutions were endorsed by the HSW Task Group:

1. The Province of Ontario needs to take appropriate action to ensure the viability of HSW Management and Funding Programs by ensuring:
    a) A level playing field is created for all brand owners participating in the HSW System

b) Municipalities collect scheduled HSW materials and products from consumers/citizens (criteria for access to be developed)
c) Revision of regulations governing HSW management to facilitate the above recommendations (to be determined)

2. The HSW Task Group endorses the Shared 50/50 Model for funding municipal HSW Programs. The preferred model will result in an equitable split in HSW program costs and make use of performance criteria to promote efficiency in the recovery of identified HSW products.

3. The HSW Task Group has developed and endorsed a schedule of materials for collection and funding by municipalities and industry in Ontario's HSW programs – Appendix B.

ATTACHMENT A

Ontario HSW Programs By Regions

Maps and Legends With New Depots Proposed

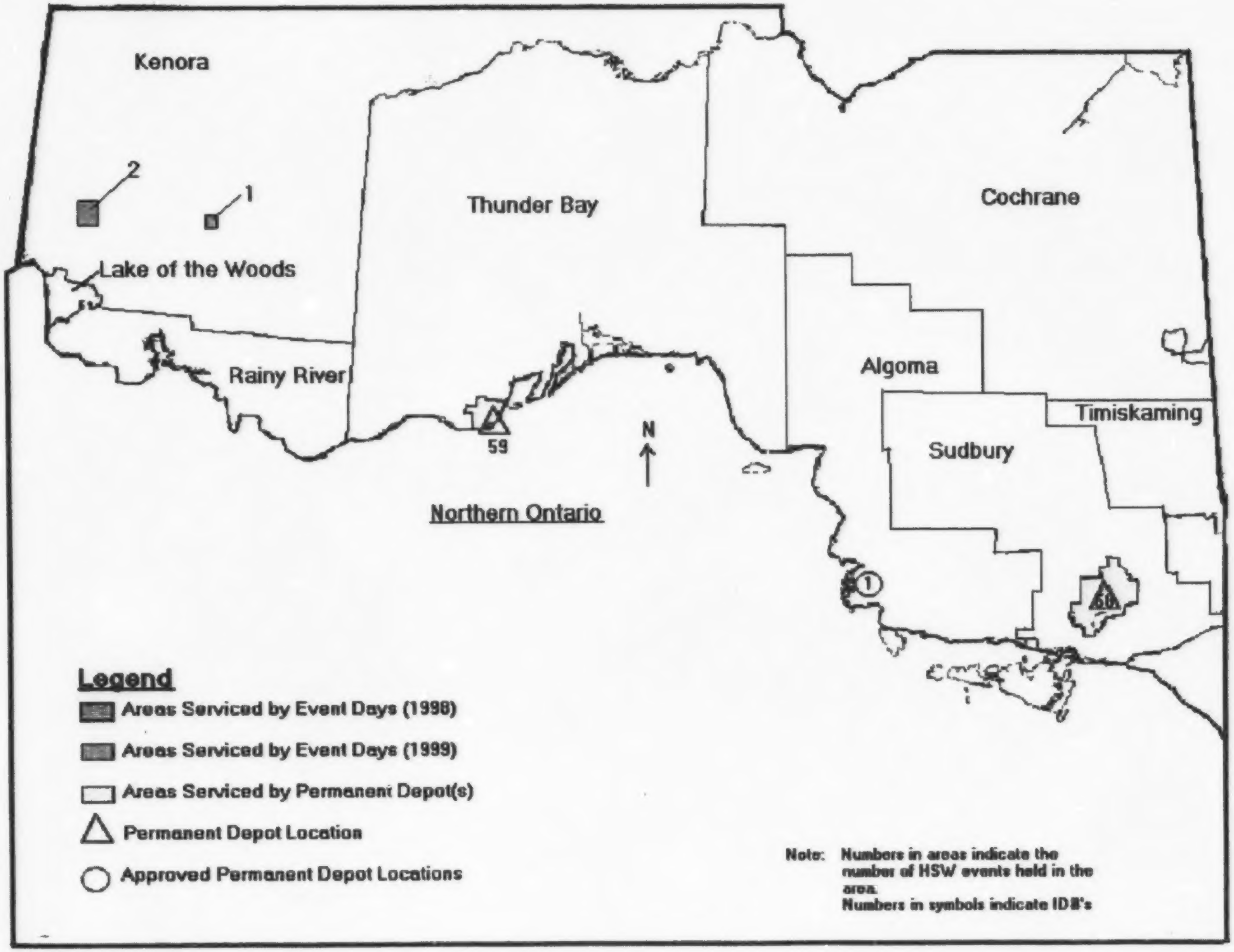
Current HSW Locations By Region

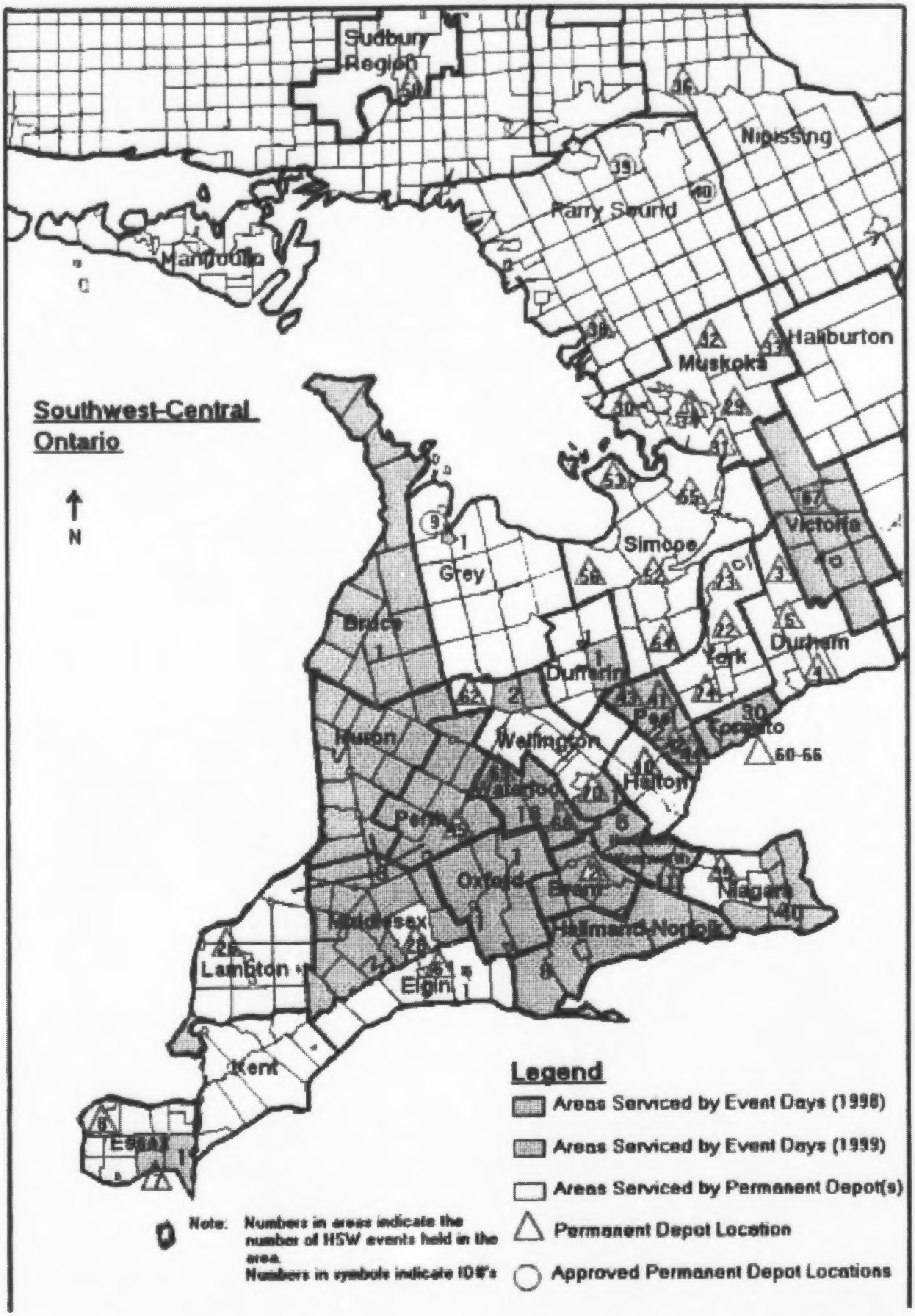
(ID# correspond to the locations marked on attached maps)

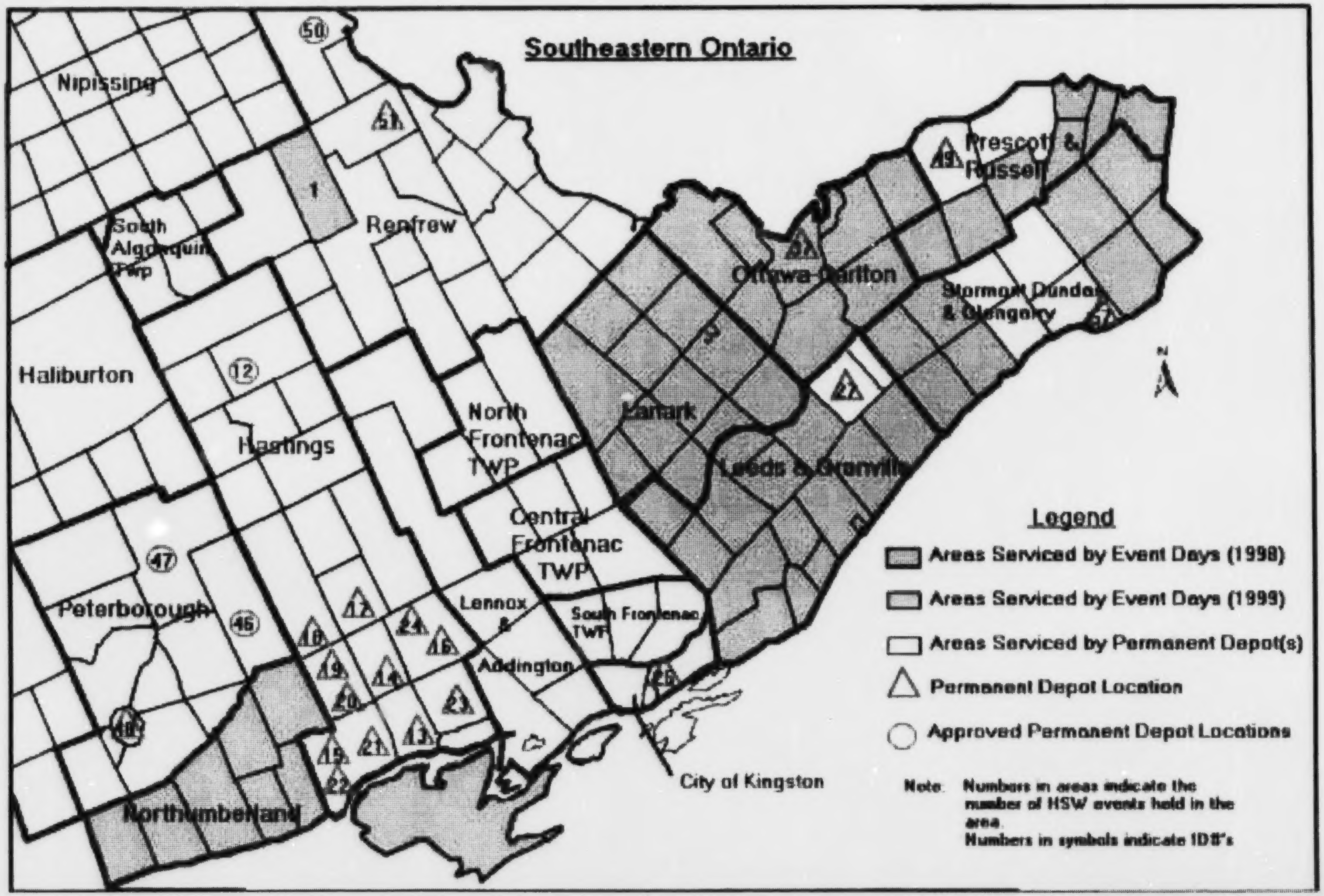
Region	ID	City/Town	Site/Name
Algoma	1	Sault Ste. Marie	Landfill Site
Brant	2	Brantford	Branford Landfill Site
Durham	3	Cannington	Brock Waste Management Facility
	4	Oshawa	Oshawa Waste Management Facility
	5	Port Perry	Scugog Waste Management Facility
Elgin	6	St. Thomas	St. Thomas Transfer Station and HHW Program
Essex	7	Kingsville	Transfer Station #2
	8	Windsor	Household Chemical Collection Center
Grey	9	Owen Sound	Owen Sound Landfill Site
Halton	10	Milton	Halton Waste Management Site
Hamilton-Wentworth	11	Hamilton	Hotz Environmental Services Inc.
Hastings	12	Bancroft	Bancroft Public Works Yard
	13	Bellville	Twp. of Thurlow Landfill Site
	14	Center Hastings	Twp. of Huntingdon Public Works Garage
	15	Frankford	Public Works Yard
	16	Hungerford	Waste Disposal Site
	17	Madoc	Madoc Landfill Site
	18	Marmora	Village of Marmora Municipal Storage Shed
	19	Rawdon	Twp. of Rawdon Landfill site
	20	Sterling	Twp. of Stirling -Rawdon Landfill site
	21	Sydney	Public Works Yard
	22	Trenton	Public Works Yard
	23	Tweed Twp.	Twp. Of Tyendinaga Landfill Site
	24	Tweed, Village of	Public Works Garage
Kingston	25	Kingston	Kingston Recycling Center
Lambton	26	Moore Twp.	4090 Telfer Rd.
Leeds & Grenville	27	North Grenville	Oxford Mills Waste Site
Middlesex	28	London	Green Way P.C.C
Muskoka	29	Bracebridge	Part lot 9 Conc. 3 MacAulay Ward
	30	Georgian Bay Twp.	Lot 27, Conc. 6 Baxter Ward

Region	ID	City/Town	Site/Name
	31	Gravenhurst	Part lots 26, 27 Morrision Ward
	32	Huntsville	Lot 32 Conc. 14, Stevenson Ward
	33	Lake of Bays Twp.	Lot 4, Conc. 8 Franklin Ward
	34	Muskoka Lakes Twp.	Part lots 21,22,23, Conc. 1 Medora Ward
Niagara	35	West Lincoln	Niagara Road 12 Landfill Site
Nipissing	36	North Bay	112 Paton Rd.
Ottawa-Carleton	37	Nepean	Trail Waste Facility
Parry Sound	38	Parry Sound	MacFarlane St. Transfer Station
	39	Powassan	Landfill Site
	40	Sandridge	Landfill Site
Peel	41	Bolton	Bolton Community Recycling Center
	42	Brampton	Brampton Recycling Depot
	43	Caledon	Caledon Public Waste And Recycling Depot
	44	Mississauga	Britannia Public Waste and Recycling Depot
Perth	45	Stratford	Stratford Landfill Site and HHW Depot
Peterborough	46	Havelock-Belmont-Methuen	6th Line landfill
	47	Twp. North Kawartha	Anstruther lake Landfill
	48	Peterborough	Peterborough City/County Household Hazardous Waste Facility
Prescott & Russell	49	Clarence-Rockland	2335 Lalonde Rd.
Renfrew	50	Deep River	Landfill Site
	51	Pembroke	Alice and Fraser Waste Disposal Site
Simcoe	52	Barrie	City of Barrie Operations Center
	53	Clearview Twp.	Nottawasaga Landfill Site
	54	New Tecumseth	New Tecumseth Transfer Station
	55	Orillia	Waste Diversion Site
	56	Twp. Of Tiny	North Simcoe Transfer Station
Stormont Dundas & Glengarry	57	Cornwall	City of Cornwall Household Special Waste Depot
Sudbury	58	Sudbury	Household Hazardous Waste Depot
Thunder Bay	59	Thunder Bay	John Street Landfill Site
Toronto	60	Etobicoke	Disco Transfer Station

Region	**ID**	**City/Town**	**Site/Name**
	61	Maple	Keele Valley Landfill Site
	62	North York	Victoria Park Transfer Station
	63	North York	Bermondsey Transfer Station
	64	North York	Ingram Transfer Station
	65	Scarborough	Scarborough Transfer Station
	66	Toronto	Commissioners Recycling Facility
Victoria	67	Fenelon	Fenelon Landfill
Waterloo	68	Cambridge	Cambridge Landfill
	69	Waterloo	Waterloo Landfill
Wellington	70	Guelph	HHW Depot, Wet-Dry Recycling Center
	71	Harriston	P.M.H.C. Landfill
York	72	East Gwillimbury	95 Bobs Drive
	73	Georgina	23068 Warden Ave.
	74	Markham	555 Miller Ave


Kenora
2
1
Lake of the Woods
Rainy River
Thunder Bay
59
Cochrane
Algoma
Sudbury
Timiskaming
60
1
N
Northern Ontario
Legend
Areas Serviced by Event Days (1998)
Areas Serviced by Event Days (1999)
Areas Serviced by Permanent Depot(s)
Permanent Depot Location
Approved Permanent Depot Locations
Note: Numbers in areas indicate the number of HSW events held in the area.
Numbers in symbols indicate IDB's


Southwest-Central Ontario
N
Sudbury Region
Nipissing
Parry Sound
Manitoulin
Muskoka
Haliburton
Victoria
Simcoe
Grey
Bruce
Dufferin
York
Durham
Peel
Toronto
60-66
Huron
Wellington
Halton
Waterloo
Perth
Oxford
Brant
Niagara
Haldimand-Norfolk
Middlesex
Lambton
Elgin
Kent
Essex
Legend
▨ Areas Serviced by Event Days (1998)
▨ Areas Serviced by Event Days (1999)
☐ Areas Serviced by Permanent Depot(s)
△ Permanent Depot Location
○ Approved Permanent Depot Locations
Note: Numbers in areas indicate the number of HSW events held in the area.
Numbers in symbols indicate ID#'s


Southeastern Ontario
Nipissing
South Algonquin Twp
Haliburton
Renfrew
Hastings
Peterborough
Northumberland
North Frontenac TWP
Central Frontenac TWP
South Frontenac TWP
Lennox & Addington
City of Kingston
Lanark
Leeds & Grenville
Ottawa-Carlton
Prescott & Russell
Stormont Dundas & Glengary
N
50
51
1
12
47
46
48
17
24
16
18
19
14
20
23
15
21
13
22
26
27
37
49
57
3
Legend
Areas Serviced by Event Days (1998)
Areas Serviced by Event Days (1999)
Areas Serviced by Permanent Depot(s)
Permanent Depot Location
Approved Permanent Depot Locations
Note: Numbers in areas indicate the number of HSW events held in the area.
Numbers in symbols indicate ID#'s

Attachment B

Schedule of HSW Materials Accepted in Ontario Programs

Draft under review by the WDO HSW Sub-Task Group
Main List of Materials Meeting Criteria for HSW Collection Substantially Complete

Schedule of HSW Materials
Accepted in Ontario Programs

HSW Draft Criteria and Sample List of Products/Substances Captured Under the Proposed Criteria

Preamble – Draft Criteria

Proposed criteria (schedule A) were developed as part of the previous discussions undertaken by Industry and Municipalities, and similar criteria are currently under review as part of the Canadian Standards Association (CSA) HHW Definition project. These criteria are based on current scientific knowledge and align with current or proposed criteria under the Federal Consumer Chemicals and Containers Regulations (CCCR), the Federal Controlled Products Regulations (WHMIS) and the Federal Transportation of Dangerous Goods Regulations (TDG). The outcome of current discussions as part of the CSA HHW Definition process could result in changes to these proposed criteria. It is recommended that the Province ensure that the criteria used in any level playing field regulation enacted by the Province eventually align with the CSA HHW Definition. Further, those parties involved in the WDO HSW Task Group recommend that the WDO endorse efforts by the CSA HHW Definition process. It is also recommended that the WDO support consequent work undertaken to develop and implement packaging labels and communications on a Federal level that clearly indicate which products and substances should be managed by Municipal or Industry-led HSW programs.

Sample List – Products/Substances Funded under Proposed HSW Funding Model

This list includes materials which meet currently available scientific criteria for residual materials that require special handling and which are not suitable for inclusion in curbside waste, or, which Municipalities and Industry mutually agree should not be included in curbside waste and require special handling such as collection through municipal Household Special Waste programs or industry stewardship initiatives. Products/Substances on this list could be added or removed subject to annual review of the criteria.

HSW Categories	Examples of Products/Substances Captured Under Proposed Criteria
Enviro-toxicity (captured by definition)	- auto batteries*
Flammables (captured by definition)	- used propane tanks and cylinders - gasoline - any product with a Flammable Symbol as regulated by the CCCR - liquid fuels - petroleum solvents - paint related thinners and degreasers (turpentine, lacquer thinner, acetone, toluene, methyl hydrate, shellac)
Acutely Toxic (captured by definition)	Any product with a Poison Symbol and the key word Danger as regulated by the CCCR.** *- some pesticides* *- some cleaning products*
Corrosive (captured by definition)	Any product with a corrosive symbol and the key word Danger or Warning as regulated by the CCCR. *- specific aggressive cleaners* *- muriatic acid* *- some pool chemicals*
Other Special Waste (not necessarily captured by definition, but which industry & municipalities mutually agree should not be included in curbside waste)	*- medical sharps* - pharmaceuticals* - motor oils and filters - used automotive antifreeze - oil-based paints - latex paints and stains - batteries - rechargeable, etc.*

* Specific industry opinion desired

** Some Products with the Poison Symbol and the key word Caution may also be captured by the acutely toxic criteria, however, discussions are currently taking place with industry as to whether the sample list should include these products.

Products & Substances Under Review

Many of these products/substances are currently accepted by municipal HSW programs but there is no clear scientific evidence established for the need for such products to be managed by these programs OR specific industries need to help establish criteria and communication messages to distinguish between those products/substances that should be managed by HSW programs and those that do not. Items from this list would not be funded under the proposed WDO HSW Funding program but can be moved to the Example List of fundable products or removed from the Review List pending an annual or biannual review.

1. Non-Aqueous Phase Liquids (NAPL's) – not captured under other Schedule "A" criteria. Currently proposed NAPL criteria (any product with an interfacial surface tension with water that is greater than 10 dynes/cm) may capture more benign substances like vegetable oil, in addition to substances like motor oil and chlorinated solvents.
2. Water miscible products, not captured by criteria but of perceived concern, i.e. Water-Based Protectants (i.e. sealers, water repellants, floor finishes), windshield washer fluid.

3. Domestic herbicides, fungicides, insecticides, sanitizers, etc., without the poison symbol.

Additional Products & Substances

By mutual agreement, the concept for long-term funding of Municipal HSW programs developed by the WDO HSW Task Group has not included a number of products/substances that theoretically could be managed by such programs but which currently are not included in the majority of municipal HSW programs.

These products include items such as fluorescent lights, mercury switches, monitors & picture tubes and obsolete electronic products. Municipalities may choose to voluntarily include such items in municipal HSW programs without funding support from industry, or separate funding could be sought from those industry sectors.

Schedule A

Criteria For Materials Not Suitable For Municipal Solid Waste Curbside Collection

Note: Categorization of a substance or mixture as "unsuitable for curbside collection" does not necessarily indicate that it should be managed as HHW, other forms of disposal such as "down-the-drain" may be fully appropriate.

1. Flammable Materials

A product or substance shall be unsuitable for curbside collection if

i. It is a liquid with a flashpoint of less than 37.8 C, except if:
   a) the liquid will not sustain combustion at temperature below 61 C; or
   b) the liquid contains 50% or less water-miscible liquids having a flashpoint of below 37.8 C with the remaining liquids having a flashpoint above 61 C.

ii. It is a material that will promote spontaneous combustion when mixed with certain classes of organic matter as determined by the Differential Mackey Test (ASTM D 3523-92)

iii. It is a Level 3 aerosol as defined by NFPA 30B: Code for the Manufacture and Storage of Aerosol Products.

iv. Reserved for compressed fuel gasses, the criteria to be determined by the appropriate stakeholder group.

2. Corrosive Materials

A product or substance shall be unsuitable for curbside collection if

i. a liquid product or substance or the aqueous slurry of a solid product or substance has
   a) a pH of less than or equal to 1.0 or greater than or equal to 13.0;
   b) a pH of less than or equal to 3.0 or greater than 1.0 and an acid reserve greater than or equal to 5.0 (liquid) or 12.5 (slurry); or
   c) a pH of less than 13.0 or greater than or equal to 10.5, and an alkali reserve greater than or equal to 5.0 (liquid) or 12.5 (slurry)

ii. it has been classified as Class 8 (Corrosives), Packing Group I under the Transport of Dangerous Goods Regulations, Canada.

iii. unless shown, by recognized test protocols, not to be corrosive to human tissue.

3. Oxidizing Materials

A product or substance shall be unsuitable for curbside collection if it has been classified as an oxidizing substance or organic peroxide under the Transport of Dangerous Goods Regulations, Canada.

4. Acutely Toxic Materials

A product or substance shall be unsuitable for curbside collection if:

i. it is a liquid or a solid and has a dermal LD_{50} of less than 1000 mg/kg

ii. a) the vapours from the product or substance has an LC_{50} by inhalation of less than 5000 ml/m3 ; and
   b) a saturated vapour concentration (at 20 C and 101.3 kPa) greater than 20% of the inhalation LC_{50}; and
   c) a package size greater than 500 ml.

5. Medical Sharps

A product or substance shall be unsuitable for curbside collection if it is a medical instrument used to inject, draw blood or puncture tissue.

6. Non-Aqueous Phase Liquids (NAPL's)

To be established.

7. Environmental Toxicity

A product or substance shall be unsuitable for curbside collection if

i. the oral LD50 is less than 50 mg/kg; or

ii. it contains greater than 1.0% of materials that have:
   - a) a value for log K_{ow} equal to or greater than 4.5 and less than or equal to 7.0;
   - b) a half life in wet soil, pH 7.0, equal to or greater than 21 days; and
   - c) .a molecular weight of less than 1000.

Appendices 5 A and 5 B

Appendix 5A

WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

Summary of Suggestions and Comments

Concerning the

WDO Interim Report / 30 June 2000

Prepared by
the Recycling Council of Ontario

RCO

Ontario Waste Diversion Organization
Summary of Comments & Suggestions: Interim Report 30 June 2000

July, 2000

Recycling Council of Ontario
July, 2000

Ontario Waste Diversion Organization
Summary of Comments & Suggestions: Interim Report 30 June 2000

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Ontario Waste Diversion Organization
Summary of Comments & Suggestions: Interim Report 30 June 2000

Recycling Council of Ontario
July, 2000

Ontario Waste Diversion Organization
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List of Appendices

Written Submissions

Ben Bennett, on behalf of the Board of the Association of Municipal Recycling Co-ordinators
Susan Koka, President, Association of Nutritional Awareness
Sharon Glover, Executive Director, Brewers of Ontario
Ed Berry, Vice President, Canadian Manufacturers of Chemical Specialties
Karin David, Director, Member Services, Canadian Paint and Coatings Association
Citizen's Network on Waste Management
Susan Antler, Executive Director, The Composting Council of Canada
Bill Pickard, Manager, Environmental Services, County of Peterborough
Roy Emery, Emery International Development Ltd.
Cathy Cirko, Director General, Environment and Plastics Industry Council
Todd Pepper, General Manager, Essex Windsor Solid Waste Authority
Don Lamont, Executive Director, Ontario Community Newspaper Association
Glen Parker, Manager, Corporate Sustainable Development, Proctor & Gamble Inc.
Rick Clow, General Manager, Quinte Waste Solutions
Peter Watson, Waste Management, Region of Durham
Pat McNally, Co-chair, Organics Committee, Director, Solid Waste, Region of Ottawa-Carleton
Melanie Kawalec, Manager, Waste Management Planning, Region of Peel
Alan Wolfe, Commissioner, Community Services, Town of Markham
Gregory Vogt, President, Super Blue Box Recycling Corp. (SUBBOR)

Ontario Waste Diversion Organization
Interim Report 30 June 2000
Summary of Consultation Process

1.0 Background

In 1998, the Recycling Council of Ontario (RCO) undertook the Recycling Roles and Responsibilities process to identify funding options that would contribute to the sustainability of Ontario's curbside recycling programs for non-durable products and packaging from the residential sector. This process led the Minister of the Environment to develop a Memorandum of Understanding (MOU) which was signed by the Association of Municipalities of Ontario, various industry sectors and the RCO. The MOU established the Waste Diversion Organization (WDO), a voluntary organization with representation from the original signatories to the MOU.

The WDO has a number of obligations as stipulated by the MOU. One of these obligations is to consult with affected stakeholders during preparation of reports to the Minister of the Environment. The RCO has been retained by the WDO to provide assistance with this stakeholder consultation process.

1.1 Waste Diversion Organization

The Waste Diversion Organization was established in November 1999 with a Board of Directors comprised of:

- four members, including the Chair, from among member companies of CSR: Corporations Supporting Recycling;
- four members from among the membership of the Association of Municipalities of Ontario;
- one member from the Liquor Control Board of Ontario;
- one member from the Canadian Newspaper Association;
- one member jointly representing the Canadian Paint and Coatings Association and the Canadian Manufacturers of Chemical Specialties Association; and
- one member from the Recycling Council of Ontario.

The Board of Directors established a number of interlocking committees and task groups to plan and support the implementation of programs to meet the objectives outlined in the MOU. These groups include:

- Funding and Regulations Committee;
- Programs Committee and its sub-groups, the Organics Task Group, Optimization Task Group and HSW Task Group; and
- Communications Committee.

The WDO has been established with the key principles that:

- management of residential waste materials is a shared responsibility between municipalities and industry, and

- industry will be responsible for up to 50% of the net cost of defined residential waste diversion programs.

1.2 Memorandum of Understanding

The WDO Memorandum of Understanding sets out the basis for a voluntary arrangement among the LCBO and companies responsible for products or packaging which is recycled or diverted through Blue Box and other recycling or diversion programs. This arrangement is intended to demonstrate product stewardship by providing funding for such programs and activities. The voluntary arrangement described by the MOU is intended to last for approximately one year and at that time be replaced by more permanent arrangements.

The MOU stipulates the role of the WDO to be:

- acceptance of contributions of money, work and other services in support of its programs;
- disbursement of LCBO funds to Ontario municipalities with Blue Box programs and other programs that recycle empty wine and liquor glass containers;
- disbursement of funding, goods and/or services in support of waste diversion programs, including:
  - the advancement of organic waste diversion,
  - new permanent or satellite municipal Special Household Waste depots,
  - a program to improve the effectiveness and efficiency of Blue Box programs and other municipal recycling and waste diversion programs; and
- planning for the longer term by carrying out investigations of specified topics, including consultation with affected stakeholders, and preparation and submission of reports to the Minister of the Environment.

1.3 Reporting to the Minister of Environment

The MOU requires that the WDO develop principles to guide the development of the long term sustainable funding formula. *Guiding Principles for Development of a Long-Term Sustainable Funding Formula for Residential Materials Recycling Programs* were approved by the WDO Board of Directors on April 12 and forwarded to the Minister of the Environment for review.

The MOU also requires that the WDO submit to the Minister a draft report by June 30 and a final report by September 1 on the following topics:

- options for a long term sustainable funding formula prescribing appropriate levels of annual contribution and appropriate sources of contribution for long term continuation of funding for:
  - up to 50% of the net operating costs of municipal Blue Box programs and other municipal programs that recycle the same or similar materials, and
  - future continuation of the waste diversion programs set up by the MOU and other programs with purposes similar to those described in the MOU;

- a plan for future allocation of funds to municipalities considering eligibility criteria, program cost efficiency criteria, waste diversion targets and the variations in costs dependent on north/south and urban/rural differences;

- development of a standardized accounting system for municipal Blue Box programs and other municipal programs that recycle the same or similar materials; and

- appropriate design of a special household waste management program in which residents may take special household waste to an appropriate depot where the products would be accepted into a program funded by the retailer or manufacturer or as otherwise developed/funded by industry.

2.0 Interim Report to the Minister

The WDO's Interim Report was presented to the Minister on June 30. The report includes introductory comments from the Chair, Mr. Peter Elwood, and the Chief Executive Officer, Mr. Damian Basset, an executive summary and information summarized in four sections:

- Part I - What We Have Accomplished to Date
- Part II - Key Tasks to be Completed
- Part III - The Key Findings to Date
- Part IV - Issues that Have Yet to be Resolved.

3.0 Consultation Opportunities

3.1 Accessing the Interim Report

The Interim Report was posted on the WDO's web page on June 30 for review and downloading. Hard copies of the report were available from the WDO on request.

3.2 Written Submissions

Written comments were accepted at the WDO office up to the end of Friday July 14, 2000 by email, fax or mail.

A total of 18 submissions were received from:

- five municipalities
    - County of Peterborough
    - Region of Durham
    - Region of Ottawa-Carleton
    - Region of Peel (including a document prepared by the AMRC HHW Group)
    - Town of Markham;
- three government organizations
    - Association of Municipal Recycling Co-ordinators
    - Essex Windsor Solid Waste Authority
    - Quinte Waste Solutions;
- two non-government organizations
    - Association of Nutritional Awareness
    - Citizen's Network on Waste Management;
- four companies
    - Brewers of Ontario
    - Emery International Development Ltd.
    - Proctor & Gamble Inc.
    - Super Blue Box Recycling Corp. (SUBBOR); and

- five associations representing business sectors
    - Canadian Manufacturers of Chemical Specialties
    - Canadian Paint and Coatings Association
    - Composting Council of Canada
    - Environment and Plastics Industry Council
    - Ontario Community Newspaper Association.

4.0 Consultation Comments

To facilitate review, comments submitted by respondents are grouped according to the following five issue areas:

- WDO Process
- Guiding Principles
- Diversion Goal
- Measuring Performance
- Data and Assumptions

Comments are also summarized to follow the Interim Report sections:

- What We Have Accomplished to Date
- Key Tasks to be Completed
- Key Findings to Date
- Issues that Have Yet to Be Resolved

4.1 WDO Process

Timeline

A number of respondents commented on the relatively short timeline of the WDO process.

Some members of the Association of Municipal Recycling Co-ordinators (AMRC)[*] indicated they were "concerned that the whole rushed nature of this exercise (after so many delays) is compromising the process. It is very difficult to get a quick turnaround of comments, especially at this time of year, and when councils are involved. It has been noted in our discussions that the time frames involved in the WDO process have precluded any real consultation on the fundamental issue of long-term support for municipal recycling, organics and HSW programs. The time frames and sheer volume of effort involved in reaching this point have prevented any true dialogue with the majority of municipalities across the province".

The AMRC submission suggested that "extending the WDO time-frames, until perhaps December 31, 2000, would provide time for the results of current studies to be integrated into the final report, and to allow time for meaningful consultation with stakeholders in the process".

The Town of Markham staff "express concern with respect to the WDO timeline", indicating that this is a "widely shared concern among most WDO participants" and " that the timelines toward generating a Final Report for September 1, 2000 have been extremely stringent and somewhat unrealistic." The Town also suggests that "the option of extending the WDO time-frames, until at least December 31, 2000, should be considered to provide time for the results of current studies to be integrated into the final report, and to allow time for meaningful consultation with stakeholders in the process".

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[*] **The comments provided in the AMRC submission have been endorsed by the Board of Directors but do not necessarily represent the membership.**

The County of Peterborough indicated they were "concerned that the process is trying to do too much too soon and although action and results are important the process and planning must be sound".

Mandate

The AMRC submission questioned the treatment of organic waste management by the WDO indicating that "organics seem to be an add-on to the process - and this is the area that may have the greatest impact on municipal solid waste operations - both in operations and financial aspects".

The Brewers of Ontario questioned the general mandate of the WDO. "Without any mandate or intention to evaluate opportunities to avoid municipal waste management costs the WDO is reduced to proposing partial funding of the status quo".

The Brewers also commented that the earlier CIPSI process failed in part because it did not encourage industry to develop secondary markets for materials, to design packaging that is easily recycled and to provide technical assistance for recycling packaging efficiently and pointed out that "this critical fault in the CIPSI proposal also finds itself un-addressed in The WDO Interim Report".

The Essex-Windsor Solid Waste Authority questioned a statement in the Executive Summary indicating they "disagree that reducing the quantity of HSW entering the municipal waste stream 'must be the first priority of the WDO'. Even the complete elimination of these materials from the municipal waste stream would have limited effect in achieving the 50% waste diversion objective of the province. Such a priority is contrary to the WDO Guiding Principle No. 2. The first priority of the WDO should be the implementation of a long-term, sustainable funding formula that supports the existing blue box (bag) recycling system, as set out in the WDO Guiding Principles".

The County of Peterborough "believes that Ontario has failed to keep pace with the rest of Canada in its commitment to waste diversion. The province and all partners in the WDO must make this exercise work this time. Ontario, once a leader in waste management, has fallen far behind. The WDO process must be sound, clear, fair and verifiable if it is to gain widespread support and succeed".

Communications

The AMRC submission indicated "general concerns about the efficiency and timeliness of communications throughout the process".

4.2 Guiding Principles

The County of Peterborough "largely supports the 'Guiding Principles'. The County would like to see the principles of reduction and reuse incorporated into these initiatives" and tackled in the five-year transition period. However, the County indicates that "the interim report quite frankly is difficult to follow and appears to deviate from the Guiding Principles".

The Canadian Manufacturers of Chemical Specialities (CMCS) comments that "the Interim Report speaks of combined guiding principles. CMCS is strongly opposed to this approach. Considerable time and effort were expended on developing guiding principles for the management of HSW that clearly recognized the essentially different needs of such programs from those to divert residential materials and organics".

4.3 Diversion Goal

A number of respondents supported reviewing the 50% diversion goal.

The Brewers of Ontario suggest that "the continued pursuit of '50% waste diversion' target needs critical review given that no consideration is given to *what* those diversion efforts should focus on. Additionally, the 50% diversion target does not consider the merits of *how* to avoid creating waste or how to recover particularly valuable or environmentally burdensome materials. Accordingly, curb-side collection of materials (a mitigating not a preventative measure) remains the sole approach to 'diverting' waste rather than but one important component of a more integrated producer responsibility model that could include product take-back, deposit-refund systems and Manufacturer Controlled Networks (e.g. The Beer Store) etc.".

CMCS indicates "it is clear that the costs associated with attaining a diversion goal of 50% appear to place disproportionate stresses on the sustainability of future diversion actions. CMCS supports the authors of this report in questioning the validity of this target. These concerns indicate a need for major rethinking on objectives and goals". The Canadian Paint and Coatings Association (CPCA) also questions the appropriateness of the 50% diversion, suggesting a cost/benefit analysis be done.

Proctor & Gamble (P&G) indicates that, "in view of the challenge (of reaching 50% diversion), we should first confirm whether or not 50% diversion is the right surrogate for the real goal which is to minimize overall environmental effect at a reasonable cost. This can be guided by conducting an environmental lifecycle study on the changes that would be required to get there. As CCME has backed off from 50% diversion as a national goal, this leaves more flexibility for Ontario to set a different diversion goal based on more detailed environmental as well as financial guidance. Note that the challenge to determine the optimal level of diversion and to consider other environmental factors is identified in several places in the report including pages iv, vii and 48. Also, Principle 2 on page 28 makes it clear that diversion should be encouraged 'in a manner which is environmentally appropriate, cost effective and socially acceptable to each community'. I believe that we have the opportunity to be more specific about how to answer this question by recommending the use of the life cycle tool to provide better guidance on what goal would be suitable. The importance of this diversion goal review is highlighted by the significantly increasing costs of each new increment of diversion. It is noted on page 21 in the context of the higher costs of incremental diversion that the benefits of diverting 50% of the waste stream are not clear. Another useful solution would be for the province to make it clear that, whatever overall provincial goal is adopted, there should be flexibility to vary the goal among municipalities to meet local sustainability circumstances".

Citizens' Network on Waste Management also supports reviewing the 50% diversion goal. "In section 4.2, the WDO recommends that there be an assessment of the 50% diversion target. We agree with the need for such an assessment. We believe that the 50% diversion goal as defined by the Province and as used as a basis for WDO decision-making in sections 3.1 and 3.2 is seriously inadequate for several reasons:

1. The goal is not aggressive enough. The WDO seems to be flirting with the idea that a goal that is less than 50% should be adopted. This kind of backtracking should not even be contemplated.

2. There should be specific diversion goals by material type. If the WDO focuses only on an overall 50% diversion target, the programmes that it carries out may not have the maximum impact in terms of protecting the environment. It also means that the funding formula that the WDO develops may not properly distribute the financial burden among sectors according to which sector or material type is creating the biggest problems.

3. The goal is a *diversion* target. In addition to this goal, there should be one for reducing waste generation. WDO and its member organizations have an essential role to play in reducing waste generation through the redesign of products to use less materials, to be more durable, to be repairable, etc. This must be integrated into the WDO programme.

4. The goal as defined in Table A does not give enough weight to the first two R's: reduce and reuse. Much more emphasis should be put on additional reduction systems, such as reuse and return systems, as mechanisms to avoid having waste go into the municipal waste stream."

Citizens' Network on Waste Management goes on to "recommend that the provincial targets include:

- a target for reduction in waste generation,
- an overall waste diversion target from landfill and incineration, and
- a series of differing diversion targets by material type.

Each of these targets must have dates, including interim targets and dates, attached to them and must state what action will be taken if the targets are not met. The WDO should develop its recommendations on the basis of targets of this type".

The AMRC submission points out that "if the focus in the diversion targets is solely tonnage based, programs that successfully divert heavy materials like newsprint and organics will appear to be more successful than municipalities that are diverting the same or more volume of much lighter materials such as plastics. Consideration should be given to material specific and/or product specific targets".

Other respondents indicated that the 50% diversion goal is appropriate and a review would not be productive.

The County of Peterborough does not support reviewing the 50% diversion goal indicating "the County considers the whole debate on 50% diversion as very unproductive. Data in this report suggests that recycling from single family residences is more cost effective than waste disposal. It has also been shown that municipalities committed to achieving the 50% diversion number have been able to do so. The County believes that the objective should be to embrace the 50% diversion goal and dedicate energy to this end rather than circular debates on what the precise achievable/affordable diversion number is".

The Town of Markham staff also "express concern with respect to the proposed redirection of the provincial 50% diversion goal".

4.4 Measuring Performance

Many respondents provided suggestions to assist the WDO in developing performance criteria.

Measuring Performance

The Town of Markham suggests that "in regards to performance, it is important that performance measures be standardized and applied to the provision of funds for recycling and HSW programs. Great caution must be taken to ensure that the performance measures applied to the long-term funding programs are feasible, fair and equitable".

Measuring Diversion

The AMRC submission noted that "it is important that performance measures applied to the provision of funds for recycling programs should be specific to the stream of materials recovered for recycling and not overall diversion goals. Likewise, if performance measure are developed for HSW funding, they should be tied into a performance measure that is specific to that segment of municipal diversion programs. Great caution must be taken to ensure that the performance measures applied to the long-term funding programs are fair and equitable, and feasible to implement".

The Essex-Windsor Solid Waste Authority points out “that waste diversion in Ontario is supposed to be measured against the 1987 historical baseline, as set out in the Ministry of the Environment and Energy *Initiatives Paper No. 4: Measuring Progress Towards Ontario’s Waste Reduction Targets (June 1992)*”.

The CPCA suggests that for HSW, performance should be measured not only through diversion, but also through “eco-efficient” management of the products collected.

The Region of Durham suggests that “the calculation of a residential waste diversion rate needs to be clearly defined as being one of the following measurable annual rates of diversion:

- Residential "curbside" recycling diversion rate:

$$\frac{\text{Tonnes of residential recyclable collected \& processed}}{\text{Total tonnes of all residential waste disposed}}$$

- Residential "multi family" recycling diversion rate:

$$\frac{\text{Tonnes of residential recycling collected \& processed}}{\text{Total tonnes of all residential waste disposed}}$$

- Residential composting diversion rate:

$$\frac{\text{Tonnes of residential compostables collected \& processed}}{\text{Total tonnes of all residential waste disposed}}$$

- Residential waste diversion rate:

$$\frac{\text{Tonnes of residential recyclables, compostables \& reuseables collected \& processed}}{\text{Total tonnes of all residential waste disposed}}$$

These formulas permit common tracking, in tonnes, of all measurable residential waste materials, being recyclables, compostables, reuseables, and garbage residue. These formulas do not accommodate any calculated or estimated waste quantities such as grasscycling and backyard composting as these particular materials are not actually collected, processed, or disposed of in a municipal program. By definition, these materials are kept out of the municipal waste stream by residents. Thus only residential materials collected and processed by the municipality are considered".

The Region suggests that "the benefit of the four distinctive formulas is that considerable time and effort has been allocated by municipalities on 'Residential C
and accordingly, the municipal residential recycling diversion rates should be in the range of 15% to 25% of the total waste stream. However, composting of organics and multi family recycling are relatively new and the respective diversion rates will be considerably less. To reach the 50% residential waste diversion goal, these two rates must increase significantly. This is municipally attainable over time and with a concentrated effort. The combined diversion rates for these two of 25% to 35% can be achieved. The difficulty with the multi family diversion rate is it is community based. Some municipalities provide this service while others do not. To be comparable, the residential waste diversion rate formulas must be basic and common to all municipal programs. Perhaps a funding formula can be crafted to reflect the applicable community residential recyclables waste diversion rate(s)".

Measuring Efficiency

Quinte Waste Solutions indicates that "expanding the range of recyclables collected may improve waste diversion efficiency, as would the amount collected as compared to the amount available, but would reduce financial or operational efficiency. Several points make note of efficiency, including the 'model of comparison', the 50% funding point and the bonus payment note. As such it will be important to ensure an acceptable definition of efficiency".

Measuring Cost-Effectiveness

The Region of Peel submitted a *Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members.* This document states that "municipalities do support a funding approach that is linked to clear incentives and performance measures. In regards to the cost effectiveness of municipal programs we would support comparison against average program costs per tonne (recycling), per capita or per household served (HSW), as an iterative process subject to annual review of municipal costs". The Town of Markham echoes this statement.

The Region of Durham requests that "reference should be made to whether a municipality has single tier or two tier waste management responsibilities and for how long. This makes a big difference in a municipality's ability to implement cost effective residential recycling, composting, and re-use waste diversion programs. For some municipalities, they have had the opportunity to improve their waste system over many years, while others are in a period of transition through municipal restructuring. For example, Peterborough and Guelph are long term single tier waste management municipalities, while Toronto, Halton, Peel, Hamilton, & Niagara are new single tier communities. York and Durham have two tier waste management systems where local municipalities are only responsible for the collection of selected waste materials".

The Region of Durham also points out that "regional issues have a significant impact on 'net recycling costs'. For example, there are major impacts:

- based on the distance recyclable materials are hauled from a recycling center to the industrial buyer,
- the cost of collecting recyclables due to the housing density of the residential community,
- on the cost of recycling dependant on when, and for how long, service contracts for collection, and/or processing, and/or marketing of recyclables were awarded, and
- on how the market prices recyclable materials.

To be comparable, these issues need to be addressed and be common to all municipal programs. Perhaps a funding formula can be crafted to reflect the net cost of providing a residential curbside recycling program. This would be different from the Multi Family formula".

4.5 Data and Assumptions

Diversion and Cost Scenarios

The County of Peterborough questioned the presentation of alternative diversion scenarios. "If the guiding principles aim at 50% diversion, then what leads to a discussion of two other groups of scenarios? More fundamentally, the scenario numbers appear purely arbitrary and there appears to be little connection between the diversion number and any work that would suggest such activity would have such an outcome. The same comment relates to the cost scenarios. What analysis has been done that develops these costs based on these events all of which appear quite hypothetical.? This scenario activity appears to be not particularly productive and more than confusing".

Validity of Data and Assumptions

Other respondents questioned the data, projections and supporting assumptions presented in the Interim Report.

The submission from some AMRC members indicated "there is a great concern amongst many municipal participants in the process that conclusions have been reached and assumptions have been made that either cannot be supported with existing information or which may not fulfill the requirements of municipalities. Many participants have indicated they feel uncomfortable about supporting decisions for which insufficient information is available, or where insufficient time has been given to carefully consider the ramifications of such decisions".

This submission suggests that, since "the necessary information to support long-term funding decisions will not be available until later in 2000 once the results of approved Round One, Two and Three projects are available, extending the WDO time-frames, until perhaps December 31, 2000, would provide time for the results of current studies to be integrated into the final report, and to allow time for meaningful consultation with stakeholders in the process".

CMCS points out that "there appears to be a conflict in the data relating to projected HSW quantities between information of page 47 and that on page 54".

Citizens' Network on Waste Management points out that "Table A, 'Getting to 50% Waste Diversion' on page 47 assumes that per capita residential generation of waste will remain the same between 1998 and 2006" and indicates that "from an environmental perspective, this is not acceptable".

The Region of Durham questions whether data properly reflects waste generated within multi-unit buildings. "Another barrier in the Multi Family sector is that many of these buildings receive private garbage collection service. With this being the case, they should receive private recycling and composting services. Accordingly, these quantities of waste materials do not necessarily enter the regular municipal waste stream. So, are these materials being collected for recycling and composting? If so, can they be accounted for properly"?

Cost Data

The Town of Markham points out that, "while it is important to make diversion options more economically favourable to disposal options, we must be realistic in our predictions and assumptions. The Interim Report, on page 18, states a 1999 estimated net cost for recycling of $99 per tonne and a projected net cost of $59 per tonne in 2000 which is due, 'in part, to stable collection and processing costs combined with rising revenues'. In an era of increasing collection costs and stabilizing revenues, how can net costs for recycling in Ontario decrease from $99 per tonne in 1999 to $58 per tonne in 2000, just one year later"?

The AMRC submission specifically questions the cost data presented. "Concern has been expressed regarding the various figures used in the Interim Report. The average net cost of recycling of $99/tonne is generally assumed to be based on the recent survey of 1999 municipal recycling costs. The net program cost of $59/tonne suggested for 2000 represents a dramatic decrease and is too low. While revenues have greatly improved this year, we are only partway through and there are already signs that fibres, which drive the revenues, are moving down in value". "In the case of waste collection and disposal costs, the basis for the $80 to $100/tonne cost is unclear, likewise the apartment waste figure. The report should include references for all figures used so that the basis for these calculations are clearly understood. Given the size of the larger urban municipalities, one contract can dramatically affect the overall provincial net cost of waste collection (or, indeed, recycling). Any formulae should be weighted to account for this."

Cost Projections

The AMRC submission suggests that "cost projections of net recycling costs for the next five years should not be based on a single 'snap-shot' (the estimated 2000 costs) but should be based on at least a three-year average net cost to account for potential variability in revenues, contract costs etc. Also, the addition of new materials could affect the prices paid for those materials. Projections cannot be made based on today's program conditions. Major packaging changes, such as soft drinks away from aluminum, would have a dramatic effect on revenues. Changes in regulations could see more materials added (or removed). This could also affect revenues".

The Town of Markham supports these views. "Cost projections of net recycling costs for the next five years should not be based on a single 'snap-shot' (the estimated 2000 costs) but should be based on at least a three year average net cost to account for potential variability in revenues, contract costs etc." "It cannot be assumed that markets will continue to be as strong as they have been during the first half of this year since many factors can impact on the strength of recycling markets. For example, if the City of Toronto improved its capture rate for recyclables by 10% or more, the resulting flood of materials on the recycling commodities market can be anticipated to soften markets, especially for many of the fringe materials such as the majority of plastic resins. Also, the soft drink packaging industry has yet to reaffirm its commitment to the long term use of the aluminum can. Future reductions in aluminum's market share will have very negative affects on overall recycling costs. One method that may stabilize recyclable markets is the introduction of some form of guaranteed floor pricing for materials at the end market. Alternatively, industry must recognize the need for changes to packaging design and packaging material choices in order to ensure that there is an economically sustainable market for recovered materials."

The Town of Markham also points out that the Town "operates a relatively efficient recycling program with net costs for recycling that are not unique in Ontario. In 1999, Markham's recycling program cost approximately $93 per tonne net of revenues. This translates into $6 or 6% below the 1999 provincial average, as stated in the Interim Report. In 2000, based on an estimated 2% inflationary increase in collection costs and an aggressive increase in recycling revenues to $80 per tonne, Markham's net cost for recycling will still only drop to $87 per tonne, or $29 higher than the Interim Report's provincial average cost forecast. If Markham's costs remain approximately 6% below the provincial average in 2000, as they did in 1999, then the 2000 provincial average net cost for recycling should be $92 per tonne. Assuming the Interim Report's recovery estimate of 702,000 tonnes in 2000, the net cost of residential recyclables in Ontario, in 2000, should be an estimated $65 million, not $41 million as stated in the Interim Report".

Quinte Waste Solutions also questions cost projections, asking "can one really assume high market revenues for the next five years? An increased supply of crude oil is anticipated on the market within one to two years and this should lower the cost of recycled materials thus reducing market revenue. Should aluminum decline as a container material of choice we will see a major reduction in market revenues. The anticipated net cost in 2000 of $59/MT is unreasonable. This Board's 1999 net cost was $116/MT as compared to the estimate of $99/MT. We included not only capital costs but also unrecoverable GST and there are other costs that require some form of agreement as to how to include them. Also, what of renewing contracts with the potential for increased costs"?

Quinte Waste Solutions indicates they "concur that market development is important; if there is an increase in the capture of recyclables (for example more municipalities start to collect boxboard) the short term market reaction might be a decline in market value; this should be anticipated and overcome. The long term goal should be to ensure a reasonable market price for all commodities".

Regarding organics, the AMRC submission suggests that "some of the cost assumptions are very rough generalities, and should not be relied upon without further research".

EPIC suggests expanding the scope of cost projections. "If we had data on the relative performance of waste management systems in addition to costs, then we would benefit from more informed decision-making. Over the last few years, progress has been made around the world on doing just that. Today, here in Canada, you have the CSR/EPIC Environmental Analysis Computer Model. It is a tool that does provide information on environmental performance for different waste management scenarios that one may wish to consider. Our suggestion would be to do additional work on defining the environmental implications of the different scenarios for reaching the 50% diversion goal. We have no objection to utilizing the above noted model to assist in this exercise. By so doing, we believe everyone will benefit from the consideration of the interrelationship between environmental benefit for cost incurred."

P&G suggests that "as we progress with an analysis of the funding options, we should all be ever mindful of the need to avoid interprovincial and international trade disadvantages/barriers. The world is becoming too small to do otherwise. One way to help avoid trade barriers is to remember that, with regard to industry funding models, they must contain an incentive for municipalities to continue to move towards more cost efficient systems, and they must be administratively simple enough to keep costs down. As, with regard to funding models, simplicity and fairness tend to be mutually exclusive, the right balance between the two will have to be found to meet this cost objective".

4.6 What We Have Accomplished to Date

Part I of the Interim Report presents a summary of the accomplishments of the WDO to date. Respondents provided comments on these accomplishments and/or the manner in which they were presented in the report.

The County of Peterborough comments that "the organics section makes some very questionable comments when describing what municipalities are prepared to do and for what reasons. Paragraph four on page 21 infers that municipalities do not recognize the benefits of organics diversion. The paragraph also sets municipalities and the province on opposite sides of the diversion debate. Municipalities support waste diversion and that is readily proven by their willingness to participate in the many recycling initiatives of the late 80's and early 90's. If there is any reluctance on the part of municipalities, it lies in the concern that after they embrace this enhanced effort to divert waste through expanded recycling HHW and organics programs that its funding partners being the province and private sector disappear as was the case in the early 90's".

The County also points out that, while "it was interesting to note in the discussion of HSW that the emphasis is on reduced generation", "this of course should be the goal of the optimization and organics group and quite frankly, this is simply the 3R's dressed in

The Essex-Windsor Solid Waste Authority refers to "the paragraph at the top of pg 10 (which) states that the 'year 2005 cost of recycling curbside recyclables is expected to be less than the cost of treating this residential material as garbage'. We believe that consensus was reached at the Funding and Regulations Committee that this was not an issue when calculating the net cost of municipal recycling programs. In addition, the argument does not take into consideration the fact that the residential recycling program is a complete duplication of the garbage collection system. On the basis of this point, we believe the last two sentences of this paragraph should be deleted".

The Essex-Windsor Solid Waste Authority also points out that, "in the last paragraph on pg 21, there is a reference to the City of Windsor. The reference should be to Essex-Windsor. The Essex-Windsor Solid Waste Authority, who is responsible for all waste management activities in Essex-Windsor except local garbage collection, has implemented a number of innovative approaches in all of our 8 constituent municipalities for organic waste. These include the brown-bag-it program in the City of Windsor, a three stream collection system in the Town of Essex, and weekly yard waste collection programs in the urban areas of all of our other constituent municipalities, as a result of the condition on our Certificate of Approval that bans the disposal of yard waste".

Quinte Waste Solutions refers to page 17 indicating that "waste reduction programs would also be of assistance to the goals including improved packaging material choices and design".

4.7 Key Tasks to be Completed

Part II of the Interim Report describes key tasks still to be completed by the WDO.

The Essex-Windsor Solid Waste Authority refers to page 39, Work to be Done by Funding and Regulations Committee, stating "we believe that the Funding and Regulations Committee should be discussing and recommending to the Minister an organizational structure that will replace the existing organization at the end of the current year. The replacement organization should be a stand alone agency with its own independent staff and administrative resources to collect and disperse funding under the model that is approved for this purpose. The organization should have a Board of Directors that is equally represented by contributing industries and receiving municipalities".

4.8 Key Findings to Date

Part III of the Interim Report presents information on the key findings of the WDO work to date. This section of the Interim Report is presented in five sub-sections and comments are summarized accordingly.

4.8.1 Getting to 50% Diversion

The Composting Council of Canada (CCC) agrees that "organics recovery holds the key to the attainment of significant diversion levels above current Ontario rates. While the composting industry (which includes the range of options from backyard to centralized composting) has grown exponentially in the past decade, further exponential gains are possible. To ensure that this potential reflects both opportunity and efficiencies, it is critical that the Waste Diversion Organization see its role in both building the diversion infrastructure for composting and contributing to the development of compost end markets".

The County of Peterborough comments that "it is stated on page 48 that achieving the first 29% diversion was relatively straightforward. The County believe that it was far from straightforward and was constantly confounded by detractors. This achievement was hard won and required considerable commitment. If there is a genuine commitment from all participants to achieve the next 21% in an environment of co-operation grounded by the guiding principles, 50% is achievable and affordable. The County in fact has exceeded the 29% provincial average".

SUBBOR points out that "capture and recovery of waste from multi-family households has been shown to be a key determinant in reaching levels above the current 29% diversion rate and your finding that this will require a technical shift is important. It may be productive in this regard to make mention of new technologies which can process mixed waste, therefore overcoming the barriers of the technical shift for processing mixed multi-family household waste".

4.8.2 Paying for Diversion Programs

The Brewers of Ontario suggest that "the WDO's description of producer responsibility as simply a function of taxes and levies paints a limited picture of how such systems really operate. Reducing a discussion of full producer responsibility (pg 49 Section 3.2 Who is the polluter) to simply a discussion of 'green taxes' and 'product levies' without a description of the system in which such fees are levied is misleading".

The Brewers disagree with the statement on page 50 regarding experience in other jurisdictions. "While the WDO contends that various producer responsibility models of other jurisdictions have not had an impact on product and packaging design this is far from being the case. Where variable collection and processing fees are levied by material type (e.g. in Germany's Green Dot program) costly materials such as plastics have seen a dramatic reduction in use. Since its introduction, Germany's program has effected an overall reduction of 13.4% in packaging use as industry works to avoid recycling costs."

The Brewers also disagree with the presentation of deposit refund systems on page 50. "The WDO Interim Report incorrectly characterizes deposit refund systems as targeting the consumer. Deposit refund is nothing more than an economic instrument (totally analogous to 'pay-by-bag') used to provide consumers with an incentive to return packaging and products. A deposit refund system is a waste management system either operated directly by the producer, by another entity in the product or package life-cycle (e.g. the retailer) or by a third party (private depots, municipalities etc.) Most importantly, deposit refund systems are full producer responsibility programs whereby the costs of the system are borne by producers (brand owners) and their consumers". "Recent Canadian data indicate that industry run deposit refund systems are the most cost effective systems for recovering beverage container materials at high rates. These data provide strong indication that as industry internalizes the costs of managing its own packaging (whether through deposit return or any other producer responsibility mechanism) it reduces those costs through efficiency."

The County of Peterborough suggests "that there is a need to provide R&D funding if program efficiencies are to be made. Funding for R&D should be outside the 50% net cost discussion and should represent a significant percentage of provincial diversion program costs, maybe as much as 20%".

The CPCA likes the idea of an "eco-fee" that is visible to consumers.

4.8.3 The Role of User Pay

Quinte Waste Solutions provides corrected information for the reference on page 52 to population. "A point of fact: (page 52) The City of Quinte West's population is 42,000

"CMCS is pleased to see that the Interim Report presents a discussion of the role of user-pay programs as options to finance diversion programs. It is often forgotten that even in so-called 'industrially funded' programs, it is the user that pays."

CMCS also points out that, "while we consider it unfortunate that the Retail Council has chosen to withdraw from the process, CMCS has substantial agreement with the 'pay-as-you -throw' approach proposed by this sector as a basis for funding municipal waste management. We request that a full presentation of this position be included in the Final Report to enable the Minister to include these concepts in consideration of future sustainable funding options".

4.8.4 There will be a Need for Regulation

The AMRC submission questions "if the 50% target is accepted, will there be any attempt to make the target binding or to ensure that there is movement in progressing towards the 'directional goal'?"

The AMRC members represented in the submission and the Town of Markham point out that "municipalities cannot be held *solely* responsible for the success in achieving diversion targets, when industry has the opportunity to assist in achieving these targets through product redesign, industry managed take-back and stewardship programs".

The Town of Markham also suggests that "enforcement of program changes should not be directed solely at the municipal level, but should also be directed at industry".

CCC points out that "the current document makes note of the potential for organics bans. The members of The Composting Council of Canada have significant experience and different perspectives in the potential and reality of this type of direction. As more discussion ensues over the next few weeks, we would request that The Council assist the WDO in bringing together these different viewpoints (pro/con) to ensure the ultimate attainability of the decided direction".

The Brewers express concern that "the WDO proposes that municipalities not only continue to bear a disproportionate responsibility for packaging management but that they be further subjected to regulation (e.g. expansion of existing 3Rs regulations to include organics) and increase program administration (pay-by-bag programs, bag limits, mandatory recycling ordinances, landfill bans, etc.)".

CMCS "concur(s) with the conclusion that, as a level playing field cannot be established
ganics', diversion of these should be the responsibility of the municipal and provincial government sectors".

4.8.5 Sharing the Costs

Recycling Programs

The AMRC submission indicates that, "in general, there is support for the preliminary recommendation that the net costs of operating municipal residential recycling programs should be shared equally". The *Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members* and the Town of Markham echo this statement.

The submission points out that choice of packaging material, specifically aluminum over steel for beverage containers, is one way that industry can share the costs of residential recycling programs. "We continue to express our concern that we are very reliant on aluminum revenues and a change in packaging material could reduce revenues and thus increase net costs by up to $20 million per year! Once a funding formula has been found, there will be no reason for an industry group to 'subsidize the blue box' by using a high-value material. While we recognize the tremendous contribution the soft drink industry, for example, has made to supporting recycling, it cannot be expected to carry the other players and we assume any new funding formula would recognize this. We should, therefore, make provision for a significant drop in the revenue side of the ledger and plan accordingly."

The submission also suggests that "development of strong markets for recovered materials is a key industry responsibility. In addition, industry must recognize the need for changes to packaging design and packaging materials choices in order to ensure that there is a market for recovered materials".

The Brewers of Ontario comment that "the WDO's definition of 'shar
allocates the financial benefits of products and packages to product producers and retailers while 'sharing' the collection and recycling costs of those products and packages with municipalities (taxpayers). In addition, municipalities bear all landfill costs associated with the disposal of un-recovered packaging. Some consider this approach equitable contending that since municipalities are held responsible for increasing diversion, the costs of disposing un-diverted materials are really the costs associated with a lack of municipal diligence in driving diversion activities". "An alternative model would be for municipalities to become service providers that charge industry (specifically

an industry body convened through a backdrop regulation) for their services. An attendant benefit of this model would be the introduction of a competitive waste management marketplace whereby municipalities compete with private operators (and even one another) to provide collection and processing services. In this model price would reflect both the efficiency and the 'true' costs of the materials being handled with the most efficient operators being most competitive and the most efficient programs being the result of competition and not complex 'efficiency' formulas."

The Citizens' Network on Waste Management rejects the WDO Interim Report proposal that industry "pay for 50% of residential recycling costs". "The 50% contribution by industry to residential recycling costs is too low. Other jurisdictions require industry to pay a much higher percentage of recycling costs. Such an approach is essential to place more of the burden on the producers of the products and packaging to encourage them to redesign their products and to design reuse, repair systems etc. which only they can develop." "We recommend that industry be responsible for paying approximately 70% of the residential recycling programmes."

"The Region of Peel agrees with the recommendation that net costs of operating municipal recycling are shared between municipalities and industry, but that:

i. The funding allocation model performance measures should be fair, equitable and feasible to implement

ii. Cost projections should be based on a multi-year average

iii. Diversion targets should consider the type of material and not just tonnages due to the weight difference of materials, for example plastics and newsprint."

The Region of Durham comments that "there is support for the concept of a long term sustainable funding formula for Blue Box recycling. Based on the Memorandum of Understanding, the Waste Diversion Organization should maximize the funding formula and promote the position that 50% of the municipal costs to collect, process, market and sell residential recyclables should be obtained directly from the manufacturers, producers, retailers of those recyclable consumer products. However, only residential recyclables should be considered. The recyclables from the commercial, institutional and industrial sector should be addressed separately".

The Ontario Community Newspaper Association (OCNA) comments that "the greatest contribution our industry can make is unpaid advertising. To succeed, the new initiative must change human behavior through public education. Advertising must be an integral part of the strategy. Newspapers incur real costs when they volunteer unpaid advertising but this approach likely provides the recycling effort with more advertising and promotional resources that could otherwise be garnered by the regulatory method. We propose to contribute $300,000 to WDO in unpaid print advertising for year 2000 plus web site advertising where our members have web sites. This contribution is generous when one considers circulation, publishing frequency, page count and the ratio of tabloid/broadsheet editions; however, it is not considered to be a baseline for any future contributions. In addition, we offer web site advertising in the form of small banners with links to the WDO web site. About 135 OCNA members now have web sites. We cannot yet calculate the market value of this advertising but it is considerable".

Organics Programs

The AMRC submission suggests that "there is general support for the suggestion that the province consider providing funding support for municipal organics diversion programs". The *Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members* and the Town of Markham echo this statement.

The AMRC submission and the Town of Markham both commented that "in order to ensure the long-term sustainability of composting programs, funding for market development for municipal compost is required. Composting proposals should be assessed not just according to the amount of diversion of materials from municipal landfill, but on the quality and marketability of the final material".

The AMRC members who were represented also suggest that "the process for looking at funding for organics needs to be improved to reflect the nature of organics".

The Citizens' Network on Waste Management rejects the WDO Interim Report proposal that industry pay "none of the costs for organic diversion programmes". "The WDO proposes the provincial government rather than industry contribute towards the costs of diversion of organics. We agree that the Province should help municipalities set up these programmes. We think that there are, however, certain industrial sectors that obviously do contribute to organic wastes, e.g. food stores, and these should make contributions to these costs. The contributions by the Province and some industries should not be restricted to set up. They should also make a commitment to municipalities to help them in the on-going operation costs." "We recommend that some industries contribute towards organic waste diversion."

The County of Peterborough suggests that "the challenge of identifying a funding formula for organics (kitchen and soiled paper waste) may be a challenge but the source of this material can be identified and thus who is responsible".

The Region of Peel comments that "since significantly greater quantities of organic wastes are required in order to meet the provincial diversion goal of 50%, the Region of Peel agrees with the WDO recommendation that the province share in these costs and that the province should provide funding for capital and operating costs to get organics system infrastructure in place. However, the Region of Peel questions the comment that there is no brandowner for food waste since many large corporations produce and market food products. The Region of Peel agrees with the WDO's comment that 'without financial assistance, many Ontario municipalities are unlikely to move forward on implementing organics diversion programs in the current climate of fiscal restraint'."

Mr. Patrick NcNally from the Region of Ottawa-Carleton submits comments "as Co-Chair of the Organics Task Group, as well as Director of Solid Waste for the Region. Although the text of the Interim Report states that organics costs are '... expected to fall to municipalities and/or the province', the table on P54 shows 100% Municipal funding. As Co-Chair, I must point out that the Task Group has not made the 100% Municipal funding recommendation, and as a Director in Ottawa-Carleton, I am concerned about the impact these new costs could have in my municipality on waste management and other programs. The local municipal politicians have a difficult time as it is trying to balance the competing needs of the community, and I suggest some provincial funding or support through various forms of legislation will be necessary. Even with 'brand owners', it has taken many years and significant funding along the way to get recycling where it is. Organics diversion represents a huge cultural change and a significant cost. Only through strong partnership and sound planning will we get there".

HSW Programs

The AMRC submission indicates that, "in general, there is support for the preliminary recommendation that the net costs of operating municipal HSW programs should be shared equally". The *Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members* and the Town of Markham echo this statement.

The Citizens' Network on Waste Management rejects the WDO Interim Report proposal that industry "pay 50% of hazardous solid waste (HSW) management". "The 50% contribution by industry towards HSW management is completely unacceptable. The producers of the products that become HSW should pay all the costs of recovering and reusing, recycling and, if necessary, disposing of the products that they have sold to the public. We must maximize pressure on the manufacturers of these products to change their product formulations to remove the hazardous components in them. If those companies that create those products have to pay all the costs, which are dramatic, of properly retrieving and handling HSW, they are much more likely to change their products." "We recommend that industry be responsible for paying 100% of the costs of hazardous waste management."

"The Region of Peel agrees with the recommendation that net costs of operating municipal HSW programs are shared between municipalities and industry, but that:

- i. The funding allocation model performance measures should be fair, equitable and feasible to implement
- ii. Cost projections should be based on a multi-year average
- iii. Diversion targets should consider the type of material and not just tonnages due to the weight difference of materials, for example plastics and newsprint."

CMCS and CPCA agree that capital funding of the HSW post-consumer product management systems is not a responsibility of industry. CMCS states that "the Interim Report notes that the province is providing start up funds for capital investment for Organics. We comment that it could do the same for HSW, should it be considered essential. Our industry strongly objects to becoming involved with funding of municipal capital expenses. (We had no choice in Year 1 of the WDO, as the MOU forced this issue, but objected from the start to its being an industry responsibility.) Development of waste management infrastructure is the responsibility of taxpayers, through municipalities. If such infrastructure is needed on a one-time basis, the provincial government would be an appropriate source for this funding."

Waste Programs

The Citizens' Network on Waste Management points out that, "in the 'Sharing of Costs' section 3.5, the WDO leaves out one cost - waste disposal. The creators of the products and packaging that end up in landfills and incinerators should be just as responsible for contributing to those costs as they are for recycling programmes. The same reasoning for contributing to these costs applies here (incentive to redesign). If companies have to pay for recycling but do not have to pay for disposal, won't it be natural to recycle as little waste as you can get away with"? "We recommend that industry be responsible for paying 70% of the costs of waste disposal."

4.9 Issues That Have Yet to Be Resolved

4.9.1 Should There be a Sunset Date for the Activities of the WDO?

The County of Peterborough comments that "it is interesting that the first unresolved issue identified is consideration of ending this exercise. It must be made clear that the County and likely most municipalities will not support a sunset arrangement on shared diversion initiatives. This sunset notion will cause municipalities to be reminded of the impact of lost funding in the nineties where continued support would have resulted in higher diversion numbers that those that have been achieved to date. The province must make it clear that ongoing support is a given".

CMCS suggests that, "whether or not there is to be a sunset date for WDO activities, CMCS considers that a five year review is an essential precondition for the continuance of any agreement to ensure that we are not locked into what might prove, based on experience, to be less than optimal approaches to waste management. The statement on page vi, The Future of the WDO, item 1, is too weak in this regard".

P&G agrees with this position, indicating "that a five year review as a precondition for the continuance of any agreement is essential to ensure that we are not locked in to what might prove, based on experience, to be less than optimal. The statement on page vi, The Future of the WDO, item 1, is too weak".

The Citizens' Network on Waste Management does not specifically recommend a sunset date for the WDO but does specify a role that is not appropriate for the WDO. "One issue that has not been addressed in the WDO Interim Report is how we monitor to ensure that the waste diversion targets are being met and that the funding mechanisms are being properly implemented. We do not believe that this is a role that the WDO can play since it is too dominated by industry and municipalities. We recommend that the Province annually release a report assessing progress towards the Province's targets and goals for waste management. The Ministry should solicit public input to this evaluation and formally respond to that input."

OCNA also does not comment on a sunset date for the WDO but does request an opportunity to participate in future activities. "Our industry is very interested in participating in the upcoming discussions about long term funding formulae. We clearly have a stake in the process. In light of our voluntary contribution, we wish to be invited by WDO/CSR to sit on the WDO and CSR Board and Committees."

4.9.2 Should Existing Provincial 3Rs Regulations be Re-Evaluated?

The Citizens' Network on Waste Management "support(s) the WDO's call for the Province to revise its waste regulations to enhance waste reduction initiatives. We recommend that the Province revise its waste regulations to enhance waste reduction and that the Province consult with all sectors as it develops and revises these regulations".

The Region of Peel submitted the *Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members.* This document states "generally, there is strong municipal support for recognition of the need for legislation to drive organics diversion system improvements". The Town of Markham echoes this statement.

CPCA and CMCS both support "the need for review of 3Rs regulations as soon as possible where they currently hinder creative uses for post-consumer products. This is particularly relevant where post-consumer products could very rapidly be diverted for use if slight modifications were made to regulations, for example in regard to regulations governing blended fuels and the transportation and handling of waste/resource materials".

"The Association for Nutritional Awareness expresses its concerns at the fact that ons 103-94 deals with the industrial, commercial and institutional sector (which includes a specific section for multi-unit residential buildings) and that the owner of the building is responsible for a source separation (recycling) program, many owners are not providing recycling services as required' (quoted from email dated July 4, 2000 from Ms. Chantal Mathieu, Environmental Control Officer, Region of Sudbury). We wish to emphasize the need to legislate this matter as soon as possible so that the seriousness of the situation will be understood before it is too late. If it is already legislated we believe that the body to enforce the laws should be activated."

4.9.3 Is the Government of Ontario Prepared to Implement Regulations to Enable the WDO to Raise the Funding to Support Municipal Waste Diversion Initiatives and to Reach the Diversion Target Established?

The Citizens' Network on Waste Management "strongly agree(s) with those on the WDO who call upon the Province to develop regulations that require all responsible industries to contribute to the costs. We recommend that the Province develop a regulation that requires industry to contribute to the costs of waste programmes and that the Province consult with all sectors as it develops and revises" this regulation.

"The Region of Peel agrees with the recommendation that an enforcement mechanism that may include regulation is required to minimize 'free riders' and provide a 'level playing field' among competing industries." The Region of Peel also submitted *the Co-ordinated Municipal Response Based on Discussions with the WDO HSW Task Group members and AMRC HHW Committee members.* This document states "generally, there is strong municipal support for recognition of the need for backdrop regulations to ensure that sufficient funds are raised and to promote a level playing field among competing companies". The Town of Markham echoes this statement.

P&G and CMCS both comment that a level playing field "is important especially given that the non grocery retail sector (RCC: Retail Council of Canada) has dropped out of the process. It is critical that the sectors represented by the RCC be included under the scope of any regulations to truly level the playing field". CMCS also "thoroughly endorses the stated need for backdrop regulation to ensure a level playing field. Such regulation should draw in all Ontario municipalities and brand-owners selling HSW products in Ontario to participate in the stewardship programs. We would stress that flexibility is the key issue here. The regulation should not be too prescriptive. It should simply set objectives and responsibilities but allow the parties concerned to agree on methods, including funding models and methods of collection of such funds".

OCNA "believe(s) a voluntary, non-regulatory approach is the way to secure the level of commitment and vigorous participation that will be required to attain 50% waste diversion. Fostering a spirit of cooperation and partnership by working through industry associations can only engender this type of commitment".

CMCS expresses concern "that the Canadian Newspaper Association favours a non-regulatory approach for printed matter. (See pages 30 and 53.) If the printed matter sector is not covered by the regulation, then it becomes more difficult to ensure fairness between this sector and the consumer packaging sector. As a minimum, whatever solution is chosen, it is critical that it be clear that the consumer packaging sector will not be responsible for any shortfall that might result from an unregulated printed matter process". P&G echoes this comment.

4.9.4 Recommendations for Additional Issues

A number of respondents suggested additional issues that the WDO should consider.

CCC suggests that the "WDO ensure that our efforts to divert organics are equally matched with efforts to ensure meaningful, effective and relevant products are produced for the marketplace. Without significant attention to establishing and supporting the fundamentals of product development (including quality, consistency, product claims &

assurances), the potential for the composting industry to retain & build the confidence of our end users in our products and the market will be severely in jeopardy".

CCC also suggests that "the government of Ontario has the potential to support development of markets and product confidence through assisting our industry in building understanding and connections with various end markets. It is our hope that both the WDO and the Ministry of the Environment will work with The Composting Council of Canada to establish and build linkages with other provincial ministries such as Agriculture, Industry and the Management Board Secretariat. These ministries hold the potential for expanding market demand and confidence in composting and compost usage".

The County of Peterborough points out that "the key issues section (page 19) fails to identify the really key issues and they are a standard cost accounting model and an effective way to measure program efficiencies. These surely are fundamental pieces of information that a funding formula will be built upon". The County adds "there are many key issues yet to be resolved that are not mentioned, most notable what is the agreed upon funding process".

The Town of Markham indicates "there are issues which should be addressed in more detail by the WDO with respect to the measurement of cost effectiveness and performance, future program cost assumptions, the role of User Pay, and the long-term sustainability of composting programs".

CMCS suggests that a more thorough benefits analysis is required. "Given this need for rethinking (of objectives and goals), we find the report too neutral on the equally important issue of benefits. Viewed from a business perspective, the objectives remain arbitrary unless balanced by a clear understanding of the benefits to be anticipated by the taxpayers and consumers of the province who will pay for these activities. For example, on the basis of the data estimated in the report, projected costs for the total diversion efforts will exceed $150 million in the year 2005. As presented, the WDO support of these programs appears largely as an exercise in transferring responsibility for costs from municipalities to consumers; costs that are not in any way justified by an equally careful analysis of resulting benefits. The lack of a benefits analysis is the weakest aspect of this report. We trust this will be rectified in the final report to the Minister to enable the Province to make educated decisions on the future sustainability of these programs."

CMCS asks that the WDO give "a clear commitment of support ... to the National Definition of HHW being developed by the Canadian Standards Association" in the final
elationship between definition of HSW and the efficiency of its management".

CMCS is also "concerned that the report makes no mention of how the management of used-oil is to be incorporated into HSW programs. Used oil is a substantial component of the materials that are likely to require management and is not represented at the WDO table or in the MOU".

The Region of Durham identifies additional issues related to multi-unit recycling. "Considerable opportunity exists in the Multi Family sector for recycling and composting. As you are aware, the type of service necessary for a Multi Family program is considerably different from the residential curbside service and thus it would be reasonable that a separate formula be crafted. Some municipalities have a higher percentage of Multi Family buildings than others. For example, Toronto has a greater number of these buildings than most other municipalities. Other municipalities do not provide any waste services to any multi family buildings. These issues need to be addressed. It appears there is no WDO Task Committee examining this unique residential system for recycling and composting improvements."

EPIC suggests that "for solid waste management systems to be sustainable, it is important in decision making to consider both the economic cost and the environmental benefits that the expenditures may bring. We strongly recommend that the WDO consider further work to relate waste management and its effect on the environment to other goals of the Province such as the reduction of smog forming chemicals such as NOx, VOC and particulate matter (PM10) which are all produced through the activities involved in waste management. Another major issue to be faced by the Province in the next few years is the need to reduce the emissions of greenhouse gases. Waste management must be related in a holistic manner to the other environmental objectives of the Province. By doing this, maximum environmental benefit for the expenditures available is likely to be achieved. This approach may however lead to directions in waste management options that are very novel but singularly effective in meeting environmental goals".

P&G suggests dialogue with the Province of Quebec be undertaken. "While outside the scope of the WDO process and the Interim Report, all stakeholders involved, including the province, should undertake to dialogue with their counterparts in Quebec to accomplish two things: 1) a low cost funding mechanism in both provinces that contains drivers in support of on-going cost efficiency and continual improvement, and 2) harmonization between the provinces as far as possible."

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Appendix 5B

WDO RESPONSE TO SUMMARY OF SUGGESTIONS & COMMENTS CONCERNING THE WDO INTERIM REPORT, 30 June 2000

At the request of the WDO Board of Directors, the WDO undertook to outline here how it addressed the major suggestions and comments offered by people and organizations on the WDO Interim Report submitted to the Minister of the Environment on June 30, 2000. The WDO received 19 written submissions, which were summarized by the Recycling Council of Ontario in a report for the WDO. The report, Summary of Suggestions & Comments Concerning the WDO Interim Report, 30 June 2000, precedes this document in this appendices.

Summary Report Heading 4.1 – Concerning the WDO Process

Timeline & Mandate

> Both the timeline and the mandate for the WDO were set by the Ministry of the Environment within the Memorandum of Understanding which formed the basis for the initial year of the WDO. The challenge for the WDO has been to comply with this requirement.
>
> Both of these issues are addressed in Section 7 of the September 1 Report to the Minister.

Summary Report Heading 4.2 - WDO Guiding Principles

> The WDO Board of Directors has prepared and approved a revised Guiding Principles document. The original document addressed only municipal recycling programs. The revised document incorporates consideration of recycling, organic diversion and HSW management.
>
> While the first year mandate of the WDO is clearly focused on very specific waste diversion tasks, the programs and policy recommendations that have been made are also supportive of reduction and reuse.
>
> The revised "combined principles" document clearly recognizes the unique and specific needs of each waste stream.

Summary Report Heading 4.3 - WDO Diversion Goal

On August 1, 2000, the Minister of the Environment sent a letter to the WDO containing his responses to the WDO Interim Report. The letter clearly sets out that "the province remains committed to achieving 50% reduction in waste disposal per capita relative to 1987."

The issue of what constitutes an appropriate waste diversion goal for the WDO and the projected costs of a range of alternative waste reduction goals are addressed in some depth in the September 1 Report, including sections:

- 4.1 – addressing the technical issues associated with the provincial methodology based upon an historic waste flow approach and the proposed WDO current waste flow approach
- 4.2 – detailing the significant policy and behavioral changes likely to be required to achieve a 50% diversion target
- 4.3 – setting out three alternative waste diversion scenarios (current momentum, 50% diversion and a middle ground) and the recycling and organic waste diversion that would need to be achieved to reach these goals
- 5.1, 5.2, 5.5 – the costs of achieving the diversion goals established for each
- 5.6 – the WDO has recommended a waste diversion specific to the residential waste stream, which includes an analysis of the significant cost premium the WDO expects to be incurred to reach beyond this goal for organics

It is important to clearly distinguish between the waste diversion goals of the province (which address both residential and IC&I wastes) and the diversion goals set for agreed upon WDO programs that will address (under existing agreements) only some elements of the residential waste stream.

The important issue of the overall environmental effect of achieving any diversion goal is dealt with in several sections of the report including:

- 3.2.2 recommendations related to organics diversion
- 3.2.3 recommendations related to HSW management
- 7.0 future WDO roles and responsibilities

Summary Report Heading 4.4 - Measuring Performance

Measuring performance

The need for standardized performance measures has been addressed in 1.1.2 (proposed WDO financial support to municipalities).

The need to apply appropriate performance measures to different materials streams is encompassed within the preferred options identified for recycling (6.1.3) and HSW (6.3.3).

Measuring efficiency

It is agreed that acceptable definitions of efficiency and how these may impact municipal program financial or operational efficiency are important and work should continue in this area if the WDO continues beyond this initial year.

Measuring Cost-Effectiveness

The WDO has agreed to adopt a process of annual review of municipal costs.

Agreement in principle has also been reached on utilizing a municipal funding allocation model, which recognizes key differences in municipal operations (1.1.2).

Summary Report Heading 4.5 Data and Assumptions

Diversion and Cost Scenarios

Addressed in Part IV of September 1 Report.

Validity of Data and Assumptions

Every effort was been made through the WDO committee work to access and utilize the best available data from all key stakeholders in the province. The 1999 cost survey which forms the basis for the financial projections, for example, was conducted with the assistance of the CAO Municipal Benchmarking Initiative, Municipal Waste Integration Network (MWIN), Association of Municipal Recycling Coordinators (AMRC), Composting Council of Canada (CCC) and Recycling Council of Ontario (RCO). We are confident that this data represents the most thorough and comprehensive baseline yet established for Ontario's waste diversion efforts.

Furthermore, projects approved in the WDO Round One funding gave significant priority to further improving this data base. The results from these efforts will be used to further refine existing planning assumptions.

Cost data and Cost Projections

See comments above.

The WDO Board of Directors recognizes that the cost projections in this report can only be *projections*. There are any number of factors which can be expected to influence the costs that will actually be incurred by municipal diversion programs and the revenues that will be received from the sale of recovered materials in the future. Recognizing this, the participants in the WDO process adopted the pragmatic view that "the numbers will be what the numbers will be." That is, the WDO calculations that will be made in future years will be based upon the best available data that can be agreed on by the participants in this process.

The WDO has also indicated that resources will be applied to reducing costs now incurred and to overcoming barriers to marketing recovered materials in the interests of reducing costs to all.

The recommendations regarding including environmental performance analysis and promoting administrative simplicity are acknowledged and captured (at least in part) in the recommendations made in Sections VI and VII of the report.

Summary Report Heading 4.7 - Key Tasks to be Completed

Future governance of the WDO is a key issue that will be addressed by the WDO Board at its October 11 meeting. This issue is addressed in Section 3.3 of the September 1 Report.

Summary Report Heading 4.8 - Key Findings to Date

Getting to 50% diversion

The critical role of organics diversion to achieving this goal is addressed in 3.2.2, 4.2, and 5.5.

The comment regarding the relative levels of effort to achieve current diversion rates and those that will be required in the future that appeared in the Interim Report has been removed from the September 1 Report.

The WDO acknowledges the need for and contribution that can be made by new technologies in achieving future waste diversion goals.

Paying for Diversion Programs

The brief comments contained in the Interim Report do not reflect the breadth and depth of discussion that has occurred throughout the WDO process around the concept of producer responsibility. It was not, however, the intent of the WDO to produce a more extensive treatise on this subject given that:

(a) extensive literature already exists on this subject (i.e. OECD draft report)
(b) the Ministry of the Environment (through the MOU) had already defined a shared industry/municipal responsibility model as the way it wished the province to go forward
(c) the job of the WDO was to implement the programs specified in the MOU and not to continue to review alternative stewardship models that have been debated in Ontario for over a decade

In regards to research and development (R&D) funding, the WDO Board of Directors decided that 10% of industry's 50% share of funding would be reserved to promote improved program efficiencies and costs effectiveness and/or to provide additional municipal incentives (1.1.2, 6.1.3). A portion of these funds is likely to be applied to R&D.

The role of user pay

The position of the Retail Council of Canada regarding user pay programs (and the support of other industry and municipal representatives for this approach) is noted in 6.1.2 and Section 7.

There will be a need for regulation

The comments made on this issue presented a useful microcosm of the range of views expressed by many of the participants in the WDO process. After reviewing the recommendations made by the WDO committees and tasks groups of the WDO, the Board of Directors has recommended that enforcement mechanisms will need to be implemented for both industry and municipalities if the financial and waste diversion goals of the WDO are to be met (see Section 6).

Sharing the costs

The options considered by the WDO and the final recommendations of the board in regards to this critical issue are addressed in some depth in Section 6 of the September 1 Report. Many of the issues raised here are addressed in the report and/or in this note.

Organics programs

The issues raised have been reviewed at some length by the Organics Task Group and the Funding and Regulations Committee and are addressed in 3.2.2, 5.2, 5.5 and in the Interim Five-Year Plan appended to the report. The recommendations of the board are presented in 6.2.

HSW programs

The HSW Task Group achieved consensus on a shared cost approach to funding HSW programs and this is reflected in 3.2.3, 5.3 and 6.3.

Waste programs

In key funding discussions, municipal representatives raised the issue of how to take into consideration ongoing waste disposal costs. Industry representatives argued for the need to deduct avoided waste disposal costs in calculating any possible industry share of costs.

The recommendation of the board is that net recycling costs be shared between industry and municipalities without consideration of avoided costs, for a period of five years (6.1.3).

Summary Report Heading 4.9 - Issues that Have Yet to be Resolved

Should there be a sunset date for the activities of the WDO?

The final recommendation of the board is that the proposed WDO funding program and the need for continuation of the WDO itself be reviewed after a period of five years (Sections 6 and 7).

Should existing provincial 3Rs regulations be re-evaluated?

This would be necessary if the recommendations made by the WDO in regards to organics are accepted.

Implementation of regulations

A core element of the September 1 Report is the need for regulations in regards to packaging and municipal obligations.

The preference of the CNA and OCNA for non-regulatory approaches is noted (6.1).

Recommendations for additional issues

The need for market development efforts concerning organics is noted in 3.2.2, 4.2, and 6.2.

The need for a standardized accounting model and an effective way to measure program efficiencies is addressed in 3.2.1, and 6.1.

The implications of striving for a 50% diversion goal are stressed in 4.2 and 5.5.

Support for the CSA work on definitions for HHW is acknowledged in 3.2.3 and 6.3.3.

The need for continuing work on multi-family recycling is acknowledged in 3.2.1, in the Interim Five-Year Plan for recycling and elsewhere in the report.

The need to include consideration of both the economic cost and the environmental benefits has been included in 3.2.2, 3.2.3, 6.2.3, and 7.

The WDO has maintained contact with Collect Selective Quebec (CSQ) to promote increased dialogue on the approaches being taken to funding waste diversion programs being considered within each province.

Return to your roots...

COMPOST!

Most of the success that you enjoy in your garden depends on the quality of your soil.

Compost feeds the soil, builds structure and is the best source of nutrients for your plants.

Add an inch of finished compost over your entire garden and turn it in.

Compost... great for your plants and great for the environment.

It's your turn. Compost!

Canadian Newspaper Association
Association Canadienne des Journaux

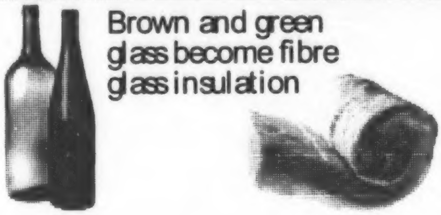
The Composting Council of Canada
Le Conseil canadien du compostage

WDO
ONTARIO
WASTE DIVERSION
ORGANIZATION

That stuff really does get recycled!

Recycling is an important part of our household routine, but many materials are still being thrown away and are lost forever. Recycled material is made into new products and new packaging and saves our valuable natural resources. So please, don't let anything get away!

Clear glass becomes new clear glass



Brown and green glass become fibre glass insulation

Cereal boxes become new boxes and cartons

Aluminum cans become new aluminum cans

Newspapers become newspapers, phone books and even kitty litter

Steel cans become auto parts, fridges and more steel cans

Don't let *any* get away! Please recycle.

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Canadian Newspaper Association
Association Canadienne des Journaux

CNA Logo

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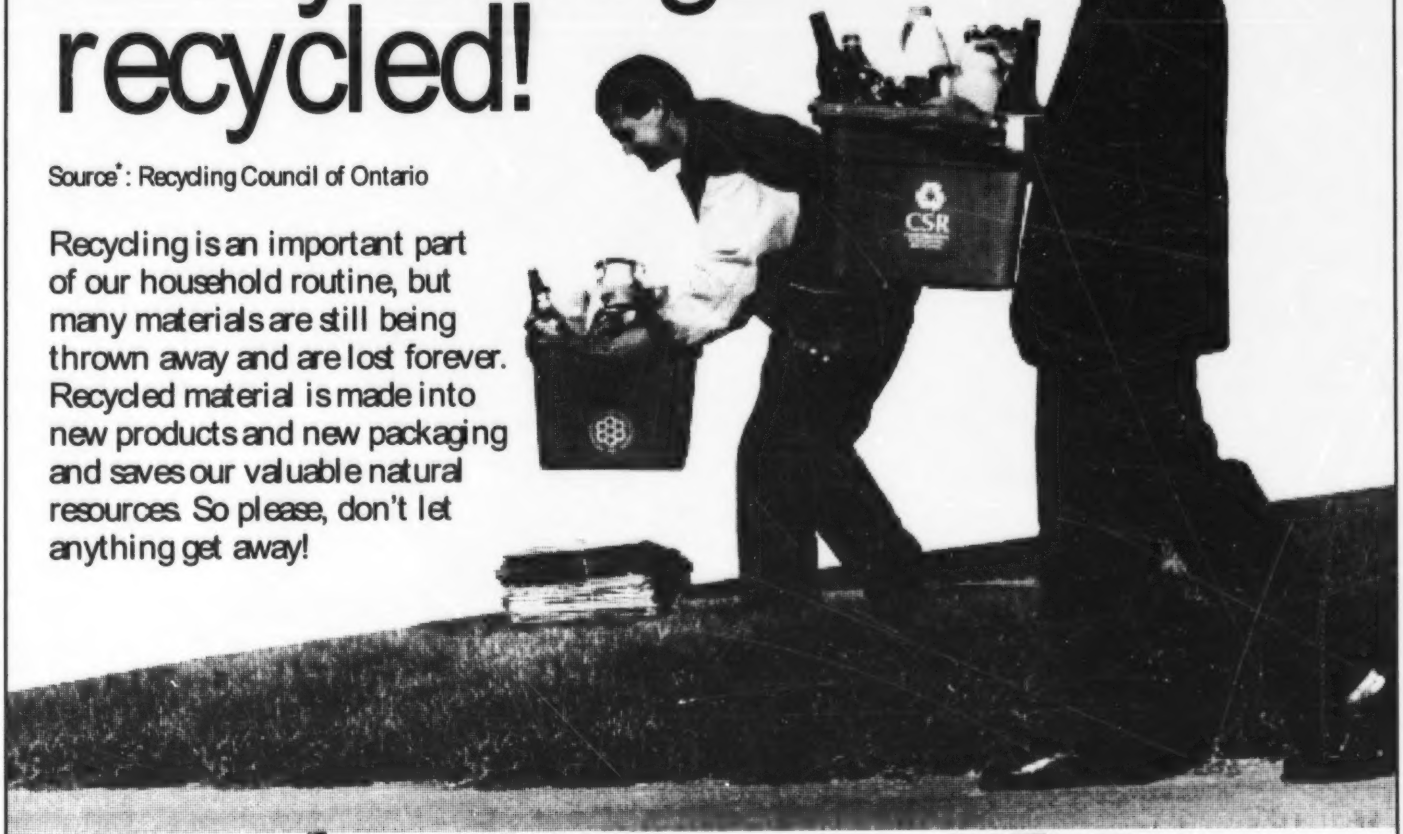
WDO
ONTARIO WASTE DIVERSION ORGANIZATION

FOR MORE INFORMATION, CALL (municipal recycling telephone number) OR CHECK www.(municipal webpage on recycling)

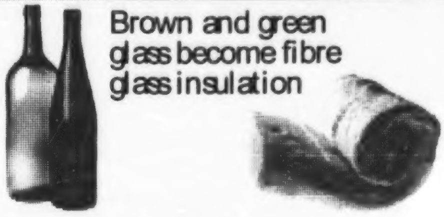
95%* of that stuff really does get recycled!

Source*: Recycling Council of Ontario

Recycling is an important part of our household routine, but many materials are still being thrown away and are lost forever. Recycled material is made into new products and new packaging and saves our valuable natural resources. So please, don't let anything get away!



Clear glass becomes new clear glass



Brown and green glass become fibre glass insulation

Corn BRAN
Corn BRAN

Cereal boxes become new boxes and cartons

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Don't let any get away! Please recycle.

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How do you rate as a recycler?

	YES	NO
I put the Blue Box out faithfully when it's full.	☐	☐
I never put a recyclable in the garbage.	☐	☐
If I can't find a recycling bin on the street, I'll carry a beverage can or bottle home.	☐	☐
I've got my parents (neighbour) (friend) recycling.	☐	☐
I rinse out salad dressing and pet food containers for recycling.	☐	☐
I take paint cans and aerosol containers to the recycling depot or dispose of them according to municipal instruction.	☐	☐
I often use more than one recycling box for materials so that I make sure I never throw a recyclable away.	☐	☐
I compost yard waste and kitchen vegetable and fruit scraps.	☐	☐
I leave grass clippings on the lawn as mulch.	☐	☐
I try to find a new home for used household goods.	☐	☐

If you checked "YES" to 8 or more statements, you're a hero recycler.

If you checked "YES" to 5 to 7 statements, you're good but could improve.

If you checked "YES" to 4 or less, you're from another planet.

Don't let any get away! Please recycle.

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WANTED

HELP
YOURSELF

A good home for some much-loved but no-longer needed items!

Before you trash that stuff that's still got a few good miles left in it, try to find it a new home. Put it on your lawn with a "Help Yourself" sign, call one of many charities which might pick it up or call your municipality at 000-0000 to see if they hold an "exchange" day.

Don't let any get away! Please recycle.

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The 60 Day Turnaround.

Nothing defines the success of recycling like the beverage can because every one you recycle is processed into a brand new can in as little as 60 days! Aluminum soft drink cans are highly valued in your municipal recycling program.

Don't let any get away! Please recycle.

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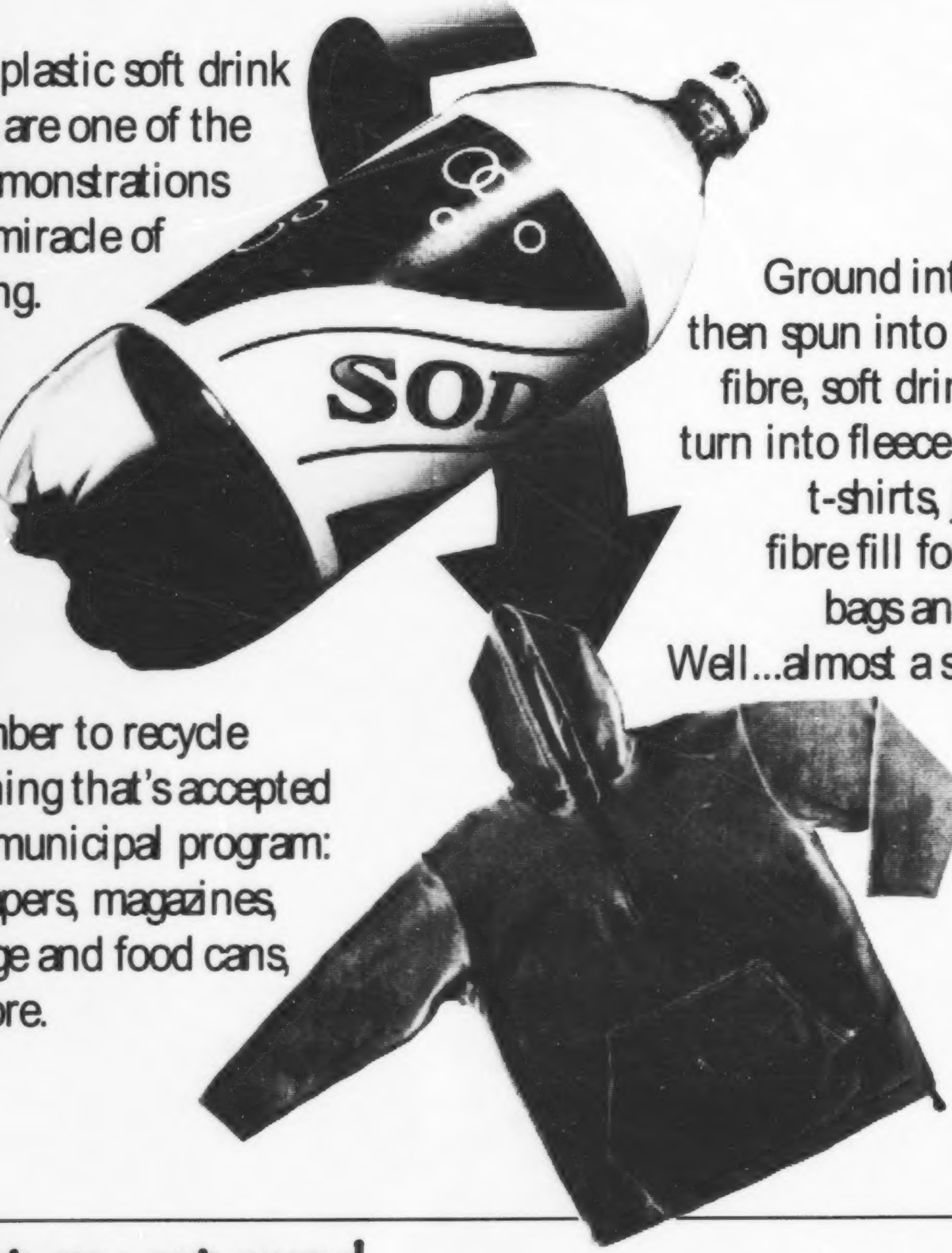
FOR MORE INFORMATION, CALL (municipal recycling telephone number) OR CHECK www.(municipal webpage on recycling)

A Silk Purse out of a Sow's Ear!



Empty plastic soft drink bottles are one of the best demonstrations of the miracle of recycling.

Ground into pellets, then spun into synthetic fibre, soft drink bottles turn into fleece clothing, t-shirts, jeans and fibre fill for sleeping bags and jackets. Well...almost a silk purse!

Remember to recycle everything that's accepted in the municipal program: newspapers, magazines, beverage and food cans, and more.

Don't let any get away!
Please recycle.

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